



Lesson 3: What can we do about climate change?

You will need access to the [TEM Carbon Footprint Calculator Student Pilot Version \(October 2021\)](#) for this lesson.

Exercise 1: working globally – you are the generation

Teacher notes: 15 minutes

Like Covid-19, global warming and climate change can only truly be addressed if we all work together as a global community. The United Nations holds regular Climate Change Conferences that aim to inspire countries across the world to actively reduce their carbon footprint.

The next one, called COP26, will be held in Glasgow from 31st October to 12th November 2021. What do you know about COP26 and the work of nations preparing for this event? Have you heard anything on the news, in social media or in conversations with your family and friends?

120 heads of state will be there discussing how to reach a point by 2050 when the things we do to take CO₂ out of the atmosphere (plant trees, for example) at least balance the amount of CO₂ our actions still put into the atmosphere – known as ‘Global Net Zero’. Scientists believe this will stop the world from warming up more than the magic figure of 1.5 degrees Celsius, above which climate change would be out of control.

Have a discussion about what needs to be done by governments and communities collectively to achieve this:

- Accelerate the phasing out of using coal and oil
- Encourage investment in renewable energy and materials
- Stop cutting down forests and plant more forests
- Speed up the switch to electric vehicles

However, climate change is happening now and affecting people’s lives (forest fires; hurricanes; flooding etc), so as well as preventing absolute climate crisis governments must work on how to protect communities and natural habitats now. This will involve:

- Building defences



- Putting warning systems in place
- Making homes, roads, communications, offices, factories and agriculture more resilient to avoid loss of homes, livelihoods and lives

We will also have to collectively work out how we are going to pay for all the work that needs to take place as an international community.

Ask learners to work out how old they will be in:

In Year?	Your Age?
2030	
2040	
2050	
2060	

You are a key generation that can help save our planet. The actions you take (individually and collectively), the careers you choose, and the learning you pass on to your own children will be critical to achieving our planet's race to zero carbon.

Exercise 2; Making a difference individually

Teacher notes: 45 minutes

All of us have a 'carbon footprint' – it is an unavoidable fact of life that the things we do, buy, eat and drink involve the production of CO₂. As individuals, one of the main differences we can make for our planet is to use less.

We are going to explore this today with the Carbon Footprint Calculator, looking at:

- How many plastic bottles we use each week...
- How many shirts and tops we buy each month...
- How many hours a day we use our mobile phone...
- How many minutes a day we spend in the shower...



When answering the questions below, you can add numbers to the cells highlighted in green, but you won't be able to change the other cells. The spreadsheet will calculate your partial carbon footprint from these 4 activities at present, and help you work out how you can take action to reduce this footprint.

How many plastic bottles do you use each week?

It is estimated that every 500ml plastic bottle has a total carbon footprint equal to 82.8 grams of CO₂. This is made up of transportation, plastic manufacture, making the bottle, cleaning, filling, storing, packaging and managing waste. Recycling reduces CO₂ by an estimate of about 50%.

Using your spreadsheet in the Carbon Footprint Calculator, record how many plastic bottles you think you use **each week**. How many do you recycle?

Do you think you might be able to use less plastic bottles each week and/ or possibly recycle more? Set yourself a target for reducing use/ recycling more over the next month.

(Don't forget, there is no point in replacing plastic bottles with another type of container you also have to throw away!).

How many shirts and tops do you buy each month?

The amount of synthetic (made by humans and not naturally found) fibres, such as polyester, in our garments has doubled since 2000, rising to 60% in 2019. This is produced from oil. A polyester shirt has a carbon footprint of up to 5.5kg, compared to a cotton shirt with a footprint of 2.1kg. If demand continues to grow at this current rate, the total carbon footprint of clothing would grow to 3,978 mega tonnes by 2050. Equivalent to almost double the carbon emissions of India in 2018.

Using your spreadsheet in the Carbon Footprint Calculator, record how many shirts and tops you buy roughly **each month**. Set yourself a target for reducing the amount of tops and shirts you buy each month from now on.

How many hours a day do you use your mobile phone?

In 2020 there were 7.7 billion mobile phones in use, with a footprint of roughly 580 million tonnes of CO₂. This is about 1% of all global emissions of CO₂. Owning and using a mobile phone for an hour a day emits about 63kg CO₂. Most carbon emissions are made in the making



of the phone, but importantly 2.5kg of CO₂ is generated each year for every hour each day you use your mobile (not by the phone itself, of course, but by all the networking and support that goes on behind its use).

Using your spreadsheet in the Carbon Footprint Calculator, record how many hours **each day** you use your mobile phone. Set yourself a target for reducing the number of hours a day from now on.

[How many minutes a day do you spend in the shower?](#)

Of course, it's important that we all stay healthy and clean. However, we can often spend longer in the shower than we really need. Spending 1 minute less in the shower each day can save 23kg CO₂ in a year, or 1.9kg each month.

Using your spreadsheet in the Carbon Footprint Calculator, record how many minutes **each day** you spend in the shower. Set yourself a target to reduce this from now on.

Exercise 3: Making a difference collectively

Teacher notes: 15 minutes

Take a look at your spreadsheet and see how much partial carbon footprint you personally generate from these 4 activities already, and how much you could reduce it by taking the actions you have identified.

Your assignment over half-term and beyond is to implement your targets over the next month and see how you get on.

You might think that the difference you make on your own is a drop in the ocean, but let's take a look at the Class Summary spreadsheet. Do you see how the current carbon footprint increases just with the 5 of you; and how much your reductions can make an impact. What if we were to multiply this by the whole school?

It won't always be easy, but the planet needs us to do this – and your children need you to do this.

There are real challenges as we are so used to fossil fuels being an everyday part of our lives – you will find some of these challenges in just this exercise – and we all need to find solutions individually and collectively. *It's just too difficult* is not an answer that cuts it with the natural world!



During next half-term, we are going to work as a team to design a climate action challenge for the whole school based on your experiences with this assignment. Really looking forward to working with you on this.