

**NORWICH  
SCIENCE  
FESTIVAL**  
@ School

**Climate  
Change**



# Climate Change

Most of us have heard about the impact of Carbon Dioxide (CO<sub>2</sub>). It is a gas produced by the combustion of fossil fuels, for example in petrol or diesel vehicles, which enhances global warming. However, humans and animals also produce this gas naturally - as we inhale oxygen, we exhale CO<sub>2</sub>.

Therefore, there is nothing wrong with CO<sub>2</sub> itself. The problem is that we have produced such large quantities of Carbon Dioxide, that the concentration of CO<sub>2</sub> in the atmosphere is contributing to global warming.

You may have heard of something called a 'Carbon footprint'. This is the amount of Carbon Dioxide released into the atmosphere as a result of what you do day-to-day, like driving a car or charging your phone. You have your own carbon footprint as an individual, as will your household and so do businesses, like BT. It is a simple measure of the impact of your activities on the CO<sub>2</sub> produced.

Decarbonisation is the term used to describe the process of removing or reducing CO<sub>2</sub> output and therefore reducing a carbon footprint. Since fossil fuels are used to produce energy, we need to look at reducing our energy consumption in order to tackle climate change. This is really important in order to protect the current ecosystems of living things that exist around the world.

In fact, at the end of this month the 2021 United Nations Climate Change Conference (COP26) is being held in Glasgow, Scotland. The aim of this is for countries from around the world to join forces and step up their efforts to tackle climate change and safeguard the planet for many generations to come. The outcome of this meeting will help shape the future outlook of the planet!

## Teacher Links

- Planet Protectors - <https://atadastral.co.uk/go/nsfcct1>
- Power Savers - <https://atadastral.co.uk/go/nsfcct2>
- Recycling Warriors - <https://atadastral.co.uk/go/nsfcct3>
- Climate Change Resources - <https://atadastral.co.uk/go/nsfcct4>
- Climate Resources & Activities - <https://atadastral.co.uk/go/nsfcct5>



## Unplugged activities

If you'd like to have a go at an unplugged version of this activity, there's lots that you can try:

- A Sea Of Plastic - introduces the problems and simple solutions around Ocean Plastics - <https://atadastral.co.uk/go/nsfccu1>
- Climate change: concept cartoon - this helps pupils explore issues around climate change - <https://atadastral.co.uk/go/nsfccu2>



## Plugged-in activities

If you'd like to have a go at a plugged-in version of this activity, there's lots that you can try:

- The 2050 Calculator - helps pupils to create and reflect upon a UK 2050 energy pathway to decarbonisation - <https://atadastral.co.uk/go/nsfccp1>
- Saving sea creatures - learn about the problems of fishing bycatch and its potential solutions - <https://atadastral.co.uk/go/nsfccp2>
- Carbon footprint - explore the mathematics behind carbon emission measurement and the concept of carbon footprint - <https://atadastral.co.uk/go/nsfccp3>
- Protect our planet - use Scratch to learn how to protect environment for future generations - <https://atadastral.co.uk/go/nsfccp4>
- Electricity generation - Use Scratch to input real data on the amount of natural resources used by countries to generate electricity - <https://atadastral.co.uk/go/nsfccp5>

## Find out more

- Environmental Effects - <https://atadastral.co.uk/go/nsfccf1>
- Impacts of Technology - <https://atadastral.co.uk/go/nsfccf2>
- The BT Big Sofa Summit - <https://atadastral.co.uk/go/nsfccf3>
- The BT Big Sofa Summit Guide - <https://atadastral.co.uk/go/nsfccf4>
- BT and Hubbub: smarter living challenge - <https://atadastral.co.uk/go/nsfccf5>

# Activity One

This activity will help you to reflect upon how we use energy on a day-to-day basis. You and your team will be acting as **Climate Inventors**, tasked with creating a new product or invention to pitch to the **Climate Critics**. This new invention will help contribute towards tackling climate change and your aim is to convince the critics that it's a great idea!

### Role of the Climate Inventors

1. Read through the worksheets on page 3 and 4 to help you understand the different target audiences and the potential areas of decarbonisation for this activity.
2. As a group, decide on which target audience you want to focus on and which sector you will aim to tackle with your new product or scheme.
3. It's time to brainstorm some of your ideas. For inspiration, you could consider the following questions:
  - a. What is your target audience's typical daily routine?
  - b. What parts of this daily routine contribute towards the area of decarbonisation that you have chosen?
  - c. How could less energy be used to continue these parts of their daily routine? Would you ask your target audience to swap to a less energy-consuming product? Would you ask them to reduce the number of times they repeat this routine?

4. Once you have come up with your new product/scheme, create a short 5-minute pitch to present your idea to the **Climate Critics**. Think of the key benefits that will persuade your target audience to make the switch to your idea.

### Role of the Climate Critics

1. As a **Climate Critic**, you need to put yourself in the role of the target audience that the **Climate Inventor** group have chosen.
2. At the end of their 5-minute pitch, you should ask some questions to dig deeper into their proposal. Use the worksheets on page 3 and 4 to help you think about the key questions you should ask about their new product or scheme, given the target audience and sector they have selected.
3. To help you evaluate their product/scheme you could consider the following questions:
  - a. What are the main challenges I might face if switching to this new invention?
  - b. What parts of my daily routine would this change? How much easier or harder does this make my daily routine? What will I miss about my old routine?
  - c. What are the benefits of this new product or scheme? What parts of this would encourage me to make the change?
4. To finish off, you should give the **Climate Inventors** your verdict as well as your thoughts on their product and how they presented their ideas.

### Challenge:

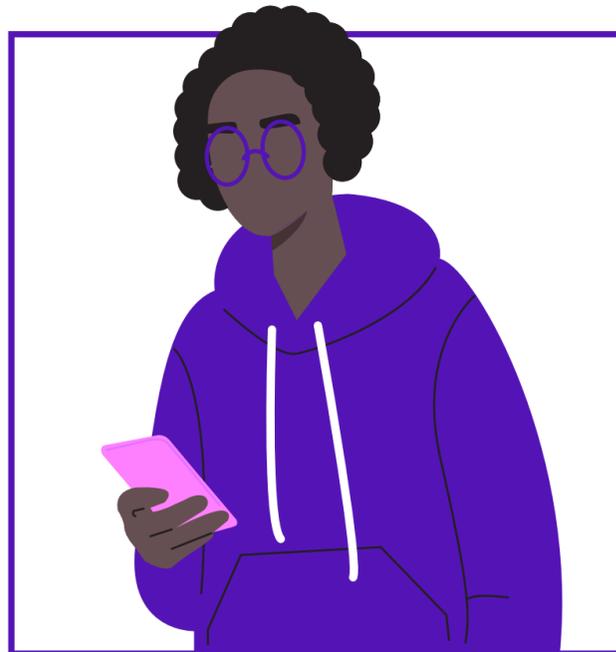
- To extend this activity, have a go at becoming a **Climate Critic** for a group of **Climate Inventors**. Use that experience of sitting on the other side and asking questions to make your invention even better.
- You could then consider pitching your improved product to a different group of **Climate Critics** to see what their feedback is.
- Can you pitch your new invention to a different target audience? What would you need to change about your product to make it appealing to this new group of people?
- Alternatively, is there any way you could extend your idea to decarbonise another sector of energy use as well?

# Worksheet

## Who is your target audience?

To create the best product, you need to know your target audience. If you don't tailor your product to a particular group of people, it won't appeal very strongly to anyone! You won't be able to think of key challenges that your audience faces, and therefore won't be able to think of a product that can help overcome these.

Imagine you're creating a new type of phone. For a younger audience, it may be important that this can run social media apps, take good photos for Instagram, and have good sound quality for streaming music. For the elderly population, instead it should be important that the phone is easy to use and has multiple accessibility options for those hard of hearing or with limited vision.



### Consumer Type 1: Teenagers

This is likely the audience type that you are most familiar with! However, does that make it the easiest? If someone came up and told you not to use your phone before bed, or not to go on the games console in the evening, would you? How easily persuaded would you be to change your habits for the environment?

If you want to target this consumer type, you should think about what tactics and information would persuade you to change your habits to help the environment.



### Consumer Type 2: Family

Families are busy people! Imagine a family that uses a car every day for the school run, the shopping, and to go to work. What would happen if you asked them to switch to public transport? What would be the benefits of this change for them? What would be the challenges?

If you want to target this group of people, you should think about which parts of their routines and habits could be easily changed and what would be the incentives for them to make those changes. Consider the financial and time savings for example.



### Consumer Type 3: Elderly population

Perhaps you may consider this demographic to be the easiest to persuade to make the changes. Simplicity is key for elderly people to make things accessible and understandable. The challenge here instead is communicating why you are suggesting the changes you are. If you aren't able to explain the environmental benefits of your new product or service to this consumer type, they may find no reason to make the change!

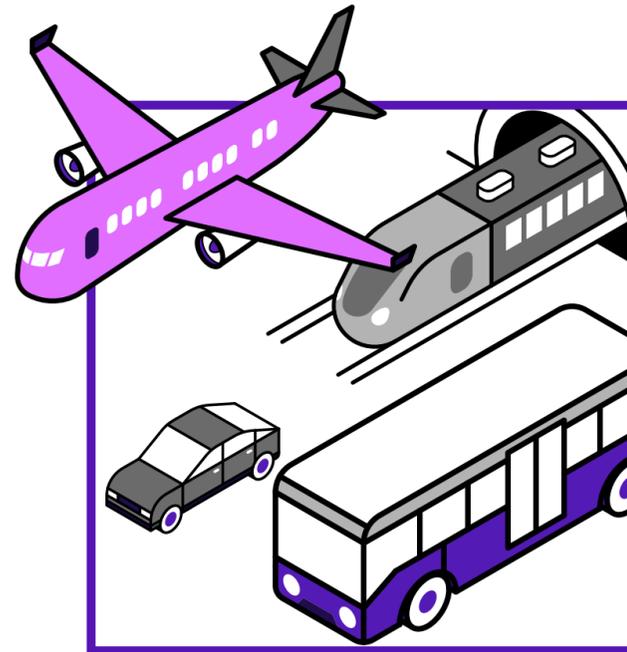
If you want to target this consumer type, you should think about how to simplify your messages to your target audience.

# Worksheet

## What are you selling?

Once you have chosen your consumer type, you now need to work out which area your product or scheme will focus on.

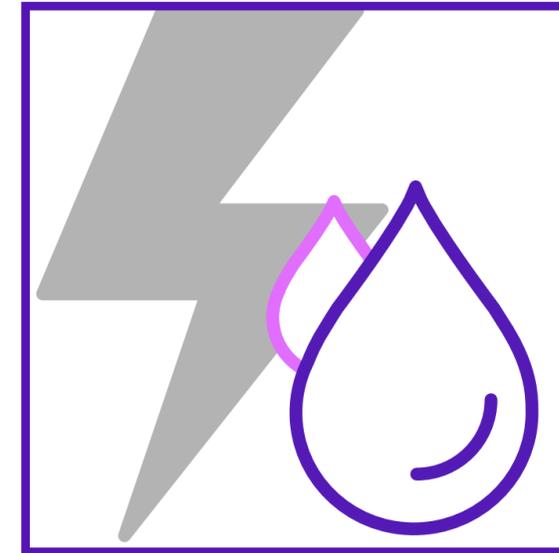
On the right are three key areas which have the strongest potential to reduce our impact on the planet. Read though each description to support your decision on which area you want to target for decarbonisation.



## Transport and Travel

Travel and transport are broad sectors that include day-to-day driving to school or work to more industrialised goods shipping and even leisure, such as flying or cruising.

If you want to go for this sector, think about what specific journey and transport type you want to tackle. Are you encouraging your consumer group to take alternative journeys or reduce unnecessary journeys?



## Domestic energy and water use

Domestic means “in the household”. Using this information, have a think about what consumes energy or water in the home.

If you want to go for this sector, think about the things in your daily routine that use energy or water? What information and resources would you need to reduce that consumption?



## Diet

Our dietary preferences also have a big impact on the planet, especially the consumption of animal-based products.

If you would like to encourage your audience to reduce their impact through dietary preferences, what information would they need to make the change?