



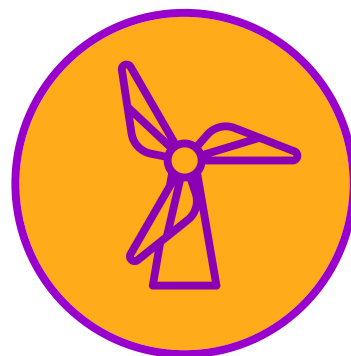
Theme 2: Living Greener

It is becoming increasingly important to transform the way we live to reduce our negative impacts on the environment.

How can we use technology to help protect our planet?

In this pack you will find:

- An overview of the theme.
- Examples of the opportunities and challenges within this theme.
- Probing questions and sub-themes to help you think about how technology can be used within this theme.
- Case studies of real examples of how technology is helping issues within this theme



Creating Greener Societies

One of the defining global challenges of our age is how to reduce our ecological footprint.

Advances in technology can play a key role in helping us to transform our cities and towns.

Below are key mini-themes, challenges, and prompting questions to get you thinking about how technology can be applied to creating greener societies.

You can also take a look at our other themes:



Theme 1 Living Longer



Theme 2 Living Better



Theme 3 Living Together

Energy Consumption

Challenges

The energy we use to light and heat our homes, drive our cars, and keep our cities and towns moving, all have an impact on the climate.

Even though the UK is increasing its amount of clean energy production, reaching 50% low carbon sources in 2018, the amount of energy used that year increased due to changes in climate ¹



How can technology help?

- How could tech be used to help us use **less energy** in our homes and buildings?
- Could tech **monitor** and **analyse** data in a way that would help us use energy more efficiently?
- What **information** would help you use energy better? Can technology help get this data to you?

Air Pollution

Challenges

Poor air quality is one of the largest environmental risks to public health in the UK, as long-term exposure to air pollution can cause chronic conditions such as cardiovascular and respiratory diseases as well as lung cancer, leading to reduced life expectancy.



How can technology help?

- How can we use technology to **reduce air pollution** in our towns and cities?
- What **information** would help you understand pollution levels? Can technology help get this information to you?

Plastic Pollution

Challenges

Plastic is everywhere. Useful and convenient, it's also a massive pollution problem, especially in our oceans. Turtles and seabirds become ensnared in discarded plastics. Around 5,000 items of marine plastic pollution have been found per mile of beach in the UK. ²



How can technology help?

- How can we use technology to help us recycle more plastic?
- What information would help you recycle more plastic? Can you use technology to get that information to people?

Biodiversity and Conservation

Challenges

The protection and conservation of all the amazing species, habitats and ecosystems on the planet is an important issue. Some of the major challenges include logging, pollution, industrialisation, poaching and disease which have led to the reduction in different species, and the destruction of habitats and ecosystems.



How can technology help?

- How can technology be used to protect endangered species and natural environments?
- How can we use technology to monitor and track endangered species?
- What information would help us protect natural environments?
Can you use technology to get that information to people?





Zero Waste Collective App

This is an app designed to make it easier for people to reduce the amount of waste they produce as they go about living their lives.



Watch this 1:13 min [video](#)

What are the problems they are trying to solve?

The world now produces more than 380 million tonnes of plastic every year, which could end up as pollutants, entering our natural environment and oceans.

In 2010 around 8 million tonnes of plastic ended up in the oceans. This is a huge problem for marine life as many animals ingest or get caught in the plastic.

How is tech being used to help?

This app aims to make it easier for people to reduce the waste they produce and to participate in making the world a little cleaner:

- Find local zero waste businesses
- Keep up to date with upcoming activities such as clean-ups or store openings
- Earn rewards from buying at zero waste shops
- Get updates with tips on how to reduce your waste and the latest news

Are there any risks?

Something to consider with this type of app is that zero waste products can sometimes be priced higher than everyday items. How can you ensure that the app is accessible to everyone, including people from different socio-economic groups.



Energy Consumption



Carbon Engineering

Carbon Engineering uses carbon capture technology to remove carbon dioxide (CO₂) from the atmosphere.



Watch this 11:42 min [video](#)

What are the problems they are trying to solve?

Carbon capture involves trapping the carbon dioxide at its emission source, transporting it to a storage location (usually deep underground) and isolating it. This means we could potentially grab excess CO₂ right from the power plant, creating greener energy.

Carbon Engineering's Direct Air Capture technology does this by pulling in atmospheric air, then through a series of chemical reactions, extracts the carbon dioxide (CO₂) from it while returning the rest of the air to the environment. This is what plants and trees do every day as they photosynthesize, except Direct Air Capture technology does it much faster.

How is tech being used to help?

Carbon dioxide (CO₂) is an important heat-trapping (greenhouse) gas, which is released through human activities such as deforestation and burning fossil fuels, as well as natural processes such as respiration and volcanic eruptions.

Too much carbon dioxide (and other greenhouse gases) in the atmosphere causes the planet's temperature to rise, which has many negative environmental impacts, including melting of the polar ice caps, rising sea levels, harsher droughts etc.

Are there any risks?

The main risk with this type of technology is the potential for leakage and environmental contamination. You would need to consider how you would prevent this and what measures you would need to put in place in case of a leak.

Some other examples you can check out:

- **Plastic Energy**
 - Developed new technology to recycle plastics
- **Refill**
 - An app helping people find refills for their water bottles (so they don't have to buy single use bottles of water)
- **Gringgo**
 - An app that not only helps people in Indonesia's recycling industry have a better income, it also makes recycling easier and more profitable.

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References

1. <https://eandt.theiet.org/content/articles/2019/07/low-carbon-electricity-production-reaches-record-high-in-the-uk/>
2. <https://www.sas.org.uk/our-work/plastic-pollution/plastic-pollution-facts-figures/>