



Guidance for Teachers

Sustainability
first

nationalgrid



PRINCIPAL PARTNER
**UN CLIMATE
CHANGE
CONFERENCE
UK 2021**
IN PARTNERSHIP WITH ITALY

Overview

Sparking Conversations explores the climate and biodiversity crisis, the role of fossil fuels in contributing to the crisis and how pupils can champion a just transition to renewable energy.

The workshop is comprised of a presentation and a writing activity. The writing activity by journalist Marcus Smith supports pupils in exploring the importance of journalism and critical thinking and how to spot fake news.

The activity is linked to the National curriculum in Wales and England and the Curriculum For Excellence in Scotland.

The following document provides guidance on each activity and presentation including equipment needed, curriculum links and main concepts covered.

We recommend watching the presentation and completing the activities in the suggested order below. Please feel free to also pick and choose which activities you would like to do and which presentations you would like to watch.

For enquiries, please email education@sustainabilityfirst.org.uk.

Sustainability *first*

The United Nations Global Goals for Sustainable Development were developed in 2015 to provide an agenda for the future of sustainability. The Goals are used across member states and sectors to assess and understand progress and have developed into a common language to discuss sustainability. Many teachers across the globe use the SDGs to embed sustainability within education.

The following workshop series supports the realisation of various Global Goals, including:



Presentations and Activities

Presentation 1: **Sparking Conversations** Sonya Peres explores societies' reliance on fossil fuels, its impact on the planet and how we can move forward using renewable energy in a fair and sustainable way.

Activity 1: Journalism workshop with Marcus Smith

Resources: access to a computer, pen, paper

Equipment:

- Device to share video
- Pencils, paper and/or computers for pupils' to write questions, comments, concerns etc.

Main concepts:

- Exploring the causes and impacts of the climate and biodiversity crisis
- Exploring energy use and the role of fossil fuels in the climate and biodiversity crisis
- Understanding the need for renewable energy generation and just transitions

Curriculum Linking:

- **England**

KS3: Science – Pupils can learn about the carbon cycle, photosynthesis/energy. They will look at Earth as a source of limited resources and the efficacy of recycling

- **Scotland**

Technologies: I can evaluate the implications for individuals and societies of the ethical issues arising from technological developments. (TCH 3-06a)

Mathematics/Numeracy: I can work collaboratively, making appropriate use of technology, to source information presented in a range of ways, interpret what it conveys and discuss whether I believe the information to be robust, vague or misleading. (MNU 3-20a)

- **Wales**

Science: Pupils should use and develop their skills, knowledge and understanding by investigating the science involved in a range of contemporary devices/machines and evaluate different energy resources and possibilities.

They should be given opportunities to study how renewable and non-renewable energy resources are used to generate electricity and the implications of decisions made about their use.

Step by Step Guidance:

- Watch the video with pupils
- Afterward, encourage pupils in groups, or as a class, to explore the topics covered in the video, perhaps by considering the following questions:

1. What can an individual do to help support a just transition to renewable energy?
2. What parts of the UK would be good to generate renewable energy?



Make sure to upload your work here so we can learn with you and share your work widely with experts at our pupils' assembly!

DISCLAIMER: Sustainability First and their sponsors (National Grid) are not liable for the actions of activity of any persons who uses this resource or in any of the suggested further resources. We assume no liability with regard to injuries or damage to property that may occur as a result of using this information. These activities are designed to be carried out by children working with an adult. The adult is fully responsible for ensuring the activity is carried out safely. You can access further H&S advice from www.cleapss.org.uk

Sparking conversations transcription

Today we're going to talk about energy – particularly two types of energy: fossil fuels and renewable energy. Let's begin!

Energy is everything.

Any time you take a walk, drive in a car, blink, grow a flower, turn the light on – energy is being used. Energy can be understood as “the capacity, or the ability to do work” – whether that means making something or someone grow, change, move, heat up or cool down etc. If we have energy to use, we can make things, including ourselves, move, grow, change, adapt and be more comfortable – and have fun!

But where does this energy come from? What does energy look like? Well – it depends on who you're asking. For humans, we get energy from food, especially foods and plants we can eat that are high in protein like lentils and beans. Plants get their energy from the sun, water and carbon dioxide in the air – this is called chemical energy.

Now, what about the things people do, like heating our homes, switching on the lights, baking bread in an oven, making electronics in a factory, taking showers with hot water or watching a film – how do we get energy to make all of these things happen? In the UK, there is a network of powerlines and pipelines that help bring energy, specifically electricity and gas, into our homes and buildings.

But where does the energy in these networks come from? And what about the energy we use to get around, to power cars and fly planes?

Now, the answer to this is a little bit more complicated and involves some of the things you may have learned in history, science and geography!

Fossil Fuels

For centuries, people used boats and animals like horses and camels to move between villages, towns and even across the world, and to transport and trade goods like spices. People also used the sun and wood to make fire to cook food and keep warm.

But in the past 300 or so years, we've been relying more and more on energy from a range of sources called fossil fuels. Before 2019, the majority of energy sources we used in the UK were fossil fuels – particularly oil and gas in more recent years. We'll talk about how that has been changing recently in a moment.

Fossil fuels are sources of energy that mainly come in the form of oil, gas and coal. They are created from decomposed biological matter or the decomposed remains of plants and other living things that were around millions of years ago! It takes a very long time for fossil fuels to be created – animals and plants decay and are buried below layers and layers of rock- over millions of years, this biological matter changes and forms oil, gas or coal depending on the type of material and the amount of heat and pressure placed on it.

Sparking conversations transcription continued

It is important to acknowledge the inequalities in how we experience the climate crisis and how people contribute to the climate crisis so that we can contribute not only to a cleaner and greener world, but a fairer and happier one as well.

Luckily, there are many things that can be done to reduce our reliance on fossil fuels and subsequently protect people and the planet.

In the UK and in many countries around the world, there has been a massive push to generate, or create energy, from renewable sources – this is known as renewable energy. Remember how I said that before 2019, the majority of the energy we used was from fossil fuels, and particularly oil and gas? Nowadays, a lot of the energy we use is renewable energy! In the first few months of 2021, more than 41% of the energy we used came from renewable sources! In fact, for nearly two years now, in the UK we have been generating more renewable energy than using fossil fuels! People all over the world have been generating energy from renewable sources for centuries, for example through windmills or watermills, but now we are doing it on a much bigger scale!

Renewable energy is derived from renewable sources meaning sources that we can replenish, or sources that don't run out. This includes sun, wind, waves in the ocean, fast-moving water like waterfalls and heat generated near the earth's crust and found a few meters from the ground – oil, gas and coal aren't renewable because they take millions of years to form.

We generate renewable energy in various ways – by taking energy from the sun through solar panels, capturing energy in the wind or energy in moving water through turbines or harvesting heat from underground through hot water in heat pumps. In the UK, we mostly generate renewable energy from the wind and fast-moving water. When you are next out and about look up and see how many solar panels you can see, or count the wind turbines you pass if you are on a motorway trip. Renewable energy doesn't release greenhouse gases like carbon dioxide when we use them, which means they don't generally contribute to the climate crisis! A massive transition from fossil fuels to renewable energy is taking place on the UK's North Sea coast, an area where lots of fossil fuels are extracted. Through the North Sea Transition deal, communities across the North Sea coast in the UK will be supported to transition to renewable energy generation to contribute to tackling the climate crisis.

In order to stop the global climate from changing, individuals, communities and governments around the world are aiming to make all our actions and activities “net zero.” Net zero means achieving a balance with how much carbon dioxide our actions release into the atmosphere and how much carbon dioxide we're able to take out of the atmosphere through various means like tree planting. Scientists urgently warn that we need to reach net-zero emissions as soon possible in order to stop rising temperatures across the globe which contribute to the climate crisis. Sourcing all the energy we need from renewable sources will help us achieve net-zero emissions from our actions and activities.

Even though net-zero goals have been declared across the world, we have to be careful about letting governments and businesses put more carbon dioxide into the atmosphere because the technology to then remove this is still being developed. While scientists are working on ways to remove carbon from the atmosphere it is considered very risky and uncertain so we shouldn't rely entirely on new technology. It is great that in the UK, the government has committed to achieve Net Zero by 2050 (2045 in Scotland). However, many people believe we can do more!

Sparking conversations transcription continued

The official UK Climate Change Committee have said that the Government needs to act more quickly on delivering its existing climate promises. We urgently need to focus on making sure no greenhouse gases like carbon dioxide are released into the atmosphere, and focus on generating and using more renewable energy as soon as possible!

Another great thing about renewable energy is that we can generate renewable energy in any country or area, unlike fossil fuels like oil, gas and coal, which are only found in certain parts of the world. The geographical limitations of accessing fossil fuels have caused global conflicts, like wars which have harmed and displaced many people in countries, due to our reliance on fossil fuels. It's important to also think about the social benefits of switching to renewable energy – like reduced air pollutions – so we can make our planet greener, but also communities and society healthier, happier and safer!

While renewable energy can support us to protect people and the planet, there are still a few issues with generating renewable energy that we need to figure out! It is not always possible to get a lot of energy from the sun – for example, as we know certain parts of the UK are often quite overcast or rainy! Similarly, we are not always able to harness energy from the wind if it is not particularly windy. Scientists and engineers are working on creating ways to store renewable energy from the sun, wind and water so that we can gather a lot of energy on a sunny or windy day and save it for an overcast day. Although there are lots of exciting advances in how we store renewable energy, including in batteries and by converting it to hydrogen, more work is still needed in this area.

This challenge doesn't mean that renewable energy is bad, or that we won't be able to stop using fossil fuels. In fact, we absolutely need to replace fossil fuels with renewable energy to reach net-zero emissions and stop the climate crisis from worsening.

And there's something that everyone, me, you, your siblings, your teacher, can do that will help – we can reduce the amount of energy we use. If we reduce the amount of energy we use, we contribute less to the burning of fossil fuel while we wait for all energy to be generated from renewable sources. There are many simple ways to reduce energy consumption – let's start at home.

At home, you can make sure lights are turned off when not in use. You can also try and take shorter showers, so you don't need to use a lot of energy to heat water. In the winter, when it gets colder, you can layer your clothing and wear more jumpers, so you don't have to turn on the radiators – which often uses gas, to heat your home. You can encourage your family or individuals you live with to do the same!

One of the big challenges in the UK for moving to renewable energy is figuring out how to heat homes without using fossil fuels. Luckily, we have technical solutions on hand that will help us make this transition. These changes won't happen overnight, but over the next 10 years the way we heat our homes and use energy in our homes will look dramatically different – that's why it is important to do small things today to make a difference.

Sparking conversations transcription continued

Now this one is a bit more complicated but definitely impactful – you can encourage your parents, carers and others to make their homes and appliances as energy efficient as possible. Anyone can do this by looking into how well the boiler and radiators work and how heat may escape through windows, the roof and walls, or if they rent, asking their landlord to do this. When a home is energy inefficient, heat from the home may escape through windows, walls and roofing – this means an energy inefficient home would use more energy to make the home warm.

We can also help the move to renewables by changing the time of day we use energy for some activities, like when we put the washing machine on. This can help reduce energy demand when the sun isn't shining and the wind isn't blowing. Apps on your phone such as the 'When to Plug In' App can tell you the best time of day to complete high energy demanding activities like doing the washing. Over the coming years, many of us are going to have to make even bigger changes in how we heat our homes by replacing our gas boilers with heat pumps. It will be important that some people are given financial support so that they can afford these if we are all going to be able to do our bit for the climate.

Another way we can reduce the amount of energy we use is through how we use transport. In 2020, it was reported that there were over 40 million cars on the road in the UK. Many cars get their energy to work from burning gas, a fossil fuel. Others, like electric cars, get their energy from electricity, but at the moment, electricity is not entirely generated from renewable energy but a mix of renewable energy and fossil fuels – also, there are only about 300,000 electric vehicles on the road. With over 40 million cars on the road powered by fossil fuels – that's a lot of carbon dioxide being released into our atmosphere.

We can do something about this! Firstly, we can begin by prioritizing active travel to get from one place to another, like to get to school! Active travel includes walking, cycling, skateboarding, using a scooter and rollerblading. Active travel doesn't use fossil fuels – it uses your body for energy! This means that when you take part in active travel, you aren't releasing carbon dioxide into the atmosphere and you are getting your heart and blood pumping – which is healthy for you. It is also helpful to prioritize public transport, like buses, trams or the tube. This is because when many people travel together on public transport, there are less cars on the road burning fossil fuels.

Another type of travel we should think long and hard about is air travel. Air travel is the most carbon intensive form of travel. Meaning, flying in an airplane burns more fuel and releases more carbon dioxide into the atmosphere per kilometer travelled than any other form of transport like cars, trains and buses. In fact, flying from London to New York City and back burns so much fuel and releases more carbon dioxide than an average person living in 56 countries around the world may produce in one whole year!

Unfortunately, it is not possible to power commercial aircrafts using renewable sources and it will take a long time before we may be able to. Some smaller aircrafts have been able to use solar energy or battery powered, but they are not big enough to meet the rising demand for air travel. For this reason, we should all focus on flying less.

Sparking conversations transcription continued

There are many ways we can encourage our families to fly less – we can ask our families and friends to prioritize taking the train if we can. A train journey, especially across the UK, can be really beautiful which can add to the trip while burning fewer fossil fuels! If we have to fly to see family, for example, we can ask our parents or carers to try and make the trip as long as possible so that way we take fewer flights to see our family instead of multiple ones!

The last thing I'd like to talk about is jobs. Remember how I said many people in the UK used to work in coal mines to feed and house their families? In 1922, more than 5% of the UK's population worked in coal mines. But around 40 years ago, in the 1980s as the UK switched toward gas and oil, many coal mines closed, and coal miners lost their jobs. There was hardly any support for them and many individuals and towns across the UK are still dealing with the impacts.

Nowadays, many people in the UK, and around the world, have jobs extracting or transporting fossil fuels like oil and gas, or in industries that rely heavily on fossil fuels, like air travel. These jobs pay for their homes, feed their families and may support their children to go to university. In short, these jobs are important because they support people to feed, shelter and cloth themselves and plan for the future. We need to make sure that when we switch to using solely renewable energy, individuals and families that rely on fossil fuels for money are supported to work in sectors that are better for the environment. People across the globe call this a key part of a “just transition” or a move to ‘green jobs’ and renewable energy that is fair and benefits everyone.

One way we can ensure a just transition is by encouraging the government to keep creating jobs in renewable energy and other sectors that are good for the planet. We can also encourage government to invest money in retraining people who are working in industries that rely on fossil fuels to instead work in more sustainable industries. We also need to work to encourage people to want to have a green job or be reskilled in sustainable industries by educating communities everywhere on the benefits of green skills.

When we think about our energy use and the switch from fossil fuels to renewable energy, we always need to think about people and communities – in the UK and around the world who may be impacted. This ensures that we are working together for a fair climate future.

Equipment:

- Device to play video
- paper, pencils, laptop - anything pupils can use to write

Main concepts:

- Exploring how to convey information through framing
- Exploring the importance of journalism and media in a just transition
- Understanding the importance of critical thinking
- How to decipher whether news is fake or not

Curriculum Linking:

- [England](#)

KS3: English (Writing)

Pupils should use discussion in order to learn; they should be able to elaborate and explain clearly their understanding and ideas

- [Scotland](#)

Social Studies: I can discuss the extent to which my choices and decisions are influenced by the ways in which I am informed. (SOC 3-17b)

I understand the arrangements for political decision making at different levels and the factors which shape these arrangements. (SOC 3-18a)

- [Wales](#)

English: pupils should be given opportunities to distinguish between facts, theories and opinions and use evidence to show the differences and can compare views of the same topic and consider which is most valid. Argue and explain a point of view, discuss an issue, persuade, question and explore interpretations,

Step By Step Guidance:

- Play video for pupils
- Take part in call to action outlined by Marcus Smith
- Exercise one: Ask pupils to come up with two truths and one lie. Gather in groups of 3-5 making their statements. Think like a journalist to assess what is true and what is not.
- Exercise two - same but different. Read article about solar panels in Hartlepool (BBC website). Find different websites reporting this story.
- How are the stories different or similar?
- What images vary and what do they portray?
- Is there anything that seems fake or a joke?

Sources used in Workshop Presentations

[Fridays for Future Campaign](#)

[Teach the Future Campaign](#)

[BP Oil Spill - National Geographic](#)

[Water and Ecosystems - United Nations](#)

[Earth Watch Institute: Plastic Rivers](#)

[Five Species Affected by Pollution - The Guardian](#)

[Thirsty Crops - WWF](#)

[Braiding Sweetgrass by Robin Wall Kimmerer](#)

Other Resources

[Education for Sustainable Development - process to equip pupils with skills, attributes and knowledge to contribute to and thrive in a sustainable world](#)

[Learning for Sustainability Resources](#)

[Green Impact - accreditation scheme to effect sustainable change using a whole-school approach](#)

[Eco-Schools Green Flag Accreditation](#)