

New world

New skills

Teacher Notes: Introduction to Sustainability

PwC Primary School Toolkit



Teacher Notes

Overview and Purpose

This lesson focuses on ideas of sustainability, carbon and going circular. By understanding what these ideas are, students will consider their own impact and practical ways they can reduce their carbon emissions.

Objectives

By the end of the session, students will:

- Explore and understand what is meant by sustainability
- Understand the role that carbon plays in warming the planet
- Consider how students can reduce their own carbon emissions
- Explore the concepts of 'reduce, reuse and recycle'
- Consider the actions that students can take to go circular

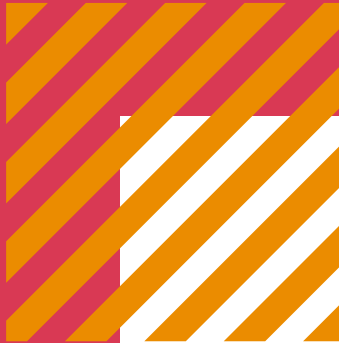
Key Vocabulary

Sustainability: meeting the needs of the present without compromising the ability of future generations to meet their needs.

Carbon: a gas released when we burn fossil fuels like coal, this is harmful as it heats up our planet and has harmful effects like extreme weather.

Renewable energy: produced by sources of energy like wind or solar that never run out and do not produce carbon which is better for the planet.

Going circular: the idea that by reducing, reusing and recycling we can lower the amount of carbon we produce.



Preparation / Materials Needed

- ☐ A smartboard
- ☐ Download the session PowerPoint
- ☐ Download the Worksheet 1
- ☐ Scissors
- ☐ An exercise book / paper

Lesson structure

Getting Started (1 min)

Our objectives

Introduction to Sustainability (15 min)

- What is sustainability
- Our current needs for good quality of life and what we need to do to look after these needs for the future.

Introduction to Carbon (17 min)

- How energy leads to carbon being produced and the danger to the planet.
- How much carbon is produced by humans.
- How can we reduce our carbon impact?

Going Circular (15 min)

- Why throwing things away is bad for the planet.
- Reduce, reuse and recycle, how can we reduce waste?

Wrap up and reflection (2 min)

- What does "sustainability" mean?
- How can you reduce your own carbon emissions?
- What do we mean by "reduce, reuse, recycle"?

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Section 1: Getting Started (1 min)

(**Slide 2**) Today, we're going to explore all about planet earth, what is meant by sustainability, how carbon plays a role in warming the planet, and what we can do every day to reduce our impact on the environment.

If students hear about something they don't understand, that's okay! There is no such thing as a silly question, so don't be afraid to ask.

Section 2: Introduction to Sustainability (15 mins)

(**Slide 3**) Introduce the first section of the lesson; sustainability.

(**Slide 4**) Ask students to spend a minute either write down or shout out a definition of sustainability, then spend a couple of minutes asking for some examples.

Reveal the definition on **slide 5**, and ask students to give any thoughts.

Moving to **slide 6**, ask students for their ideas on what they think these "needs" in the present might be. Talk through that these needs are the things that we depend on to live a good quality of life. Ask students to take a minute to write these down.

After a minute, ask students what they think. Responses could include: food, water, breathable air, electricity, healthcare, housing, technology, transport, jobs and money - present **slide 7** with some of these answers.

Ask students to pick one of these needs from slide 7 and write down what they think might put this at risk and what actions we can take to look after or preserve this need for the future and future generations of people. By moving to **slide 8**, you can give the class an example. After two minutes, find out what some of the students' ideas are.

Section 2: Introduction to Carbon (17 mins)

Moving to **slide 9**, introduce the next section about carbon.

(**Slide 10**) Where does energy come from?

- Explain that when we use electricity to power things like lights and computers, this requires energy.
- We can get energy in different ways, and from different things, but most of our energy comes from burning fuels that are known as fossil fuels, an example of this is coal.
- Then, when we burn fossil fuels it releases a gas, this is called carbon dioxide. The problem with carbon dioxide is that too much of carbon in the air, makes the planet get hotter.
- When the planet gets hotter, this has a knock on effect on lots of things. Sometimes this causes extreme weather like droughts, floods or storms - and this means that the habitats of animals and plants are also destroyed.

(**Slide 11**) show the class what one tonne of carbon dioxide looks like. Astonish them by revealing that it fills a ball 10 metre across - that's twice as high as a giraffe!

(**Slide 12**) challenge the class to write down on a piece of paper how many tonnes of carbon dioxide they think is put into the air by humans every year. Get the class to hold up their answers (or stand up with their answers) - and then reveal the answer on **slide 13**.

Explain that this is an enormous amount of carbon dioxide and that such high amounts are dangerous to the environment. Moving onto **slide 14**, talk through some of the ways we can reduce this carbon dioxide and help the environment.

- We can replace fossil fuels like coal which produce carbon dioxide with renewable energy. This type of energy doesn't release carbon dioxide into the air and is better for the environment and the planet.
- Renewable energy will never run out, we can use wind as energy with wind turbines, or solar energy with solar panel or even geothermal energy through heat from the earth.
- Trees also take away carbon dioxide from the air, as they breathe it in. The more trees there are, the more we can remove carbon dioxide from the air and stop the planet warming up.

(**Slide 15**) Ask the class to shout out how many tonnes of carbon dioxide they think the average person in the UK produces every year.

Then reveal on **slide 16** the answer.

(**Slide 17**) Then spend two minutes asking the students to think what actions we all can take individually to reduce this carbon impact.

After some suggestions, moving to **slide 18**, talk through some of the ideas.

(**Slide 19**) Explain that if every person reduced their carbon impact, this would help the environment - can you get other people to reduce their carbon impact too?

(**Slide 20**) there are lots of people we can influence who can reduce carbon, talk through the different people.

Move to **slide 21**, and ask students to spend a minute writing down three things they will try to do to reduce their carbon, and spend a minute with the class feeding back these suggestions.

(**Slide 22**) We will now move on to the idea of “going circular”.

Section 3: Going Circular (15 mins)

(**Slide 23**) For a minute, ask the class to think of some ideas why throwing things away can be bad for the planet.

(**Slide 24**) Present some of the ideas on this slide.

(**Slide 25**) For a minute, ask students what they think we can do to solve these problems- the main themes should be: using less, using items for longer and recycling more.

Move on to **slide 26** and talk through the definitions and examples of reduce, reuse, recycle.

- Reduce- use less. An example is using less plastic which we only use once and then throw away.
- Reuse- use it again. An example is having a reusable water bottle.
- Recycle- turn waste into something new. An example is ensuring we put things that can be reused in special bins so they can be reused again! Like old cans, which we can melt and then make new ones.

(**Slide 27**) We will now do an activity. Using **Worksheet 1** ask students to cut up the cards and sort them into categories as to whether they would reduce, reuse or recycle the waste types. Alternatively, get students to complete this activity on a whiteboard or piece of paper. Note, lots can fit into more than one category.

If they have time, ask students to think about how they can treat the waste, ie for food waste, turning this into compost, reusing waste could be through donating to a charity shop or upcycling.

(**Slide 28**) Ask students to come up with one thing that they will either reduce, reuse or recycle in their day to day lives, ask students to feedback/collate responses.

Section 4: Wrap up and Reflection (2 mins)

(**Slide 29**) Wrapping up, let's think about everything we have learned today.

- Ask for a suggestion on what sustainability means. The answer should be around "Meeting the needs of the present without compromising the ability of future generations to meet their needs."
- Ask for suggestions on how we can reduce our own carbon emissions? Answers should be around using renewable energy like solar, wind etc., planting trees, eating locally sourced food, walking or cycling instead of driving, saving water, turning off lights when we're not using them, buying second-hand clothes, recycling our rubbish, flying less and campaigning for change.
- Ask for suggestions on what we mean by reduce, reuse, recycle. The answers should be reduce- use less. Reuse- use it again. Recycle- turn waste into something new.

To evidence what the students have learnt from today's session, you may choose to ask children to write down their answers to the reflection questions.

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