Carbon Capture Lesson 1 | Lesson Outline

Learning Lab

Learning intention:
To investigate why peatlands must be wet to work as a natural store of carbon dioxide, by comparing the decomposition of organic material in waterlogged soil and drier soil.

Note: This lesson needs to be set up and left for at least two weeks before the worksheet can be used.

Resources **Carbon Capture 1** – Introductory Video **4min 31sec** **Carbon Capture 1** – Instruction Slides **Worksheet 1** – Tea Testing **Answers** – Worksheet 1	**Per group or pupil** 2 x medium pots or jars (e.g. empty jam jars) Soil Spoon or scoop 2 x green tea teabags Water

Hook into the lesson	Play **Carbon Capture 1 – Introductory Video.** The video explains that Scotland has natural resources, such as trees, salt marshes and peatlands that can naturally store carbon dioxide. The video asks the following question, giving opportunity to pause and discuss (or pupils could write individual answers): • **What do plants need to survive? 1min 20sec**
Activity	The class will prepare tea testing stations using **Carbon Capture 1 – Instruction Slides.** The activity can be run either as: • a teacher-led activity with one or two sets of soil pots. In this case the instructions are for your reference only. • an individual activity with each pupil setting up and maintaining their own soil pots. • a group activity where the recommended maximum group size is four. Give pupils **Worksheet 1 – Tea Testing.** Pupils will observe the differences in tea bags buried in soil with different moisture levels, over the course of at least two weeks. They will be asked questions related to the breakdown of living things in very wet conditions, and will link this to peatlands.
Plenary	In addition to the worksheet, or as an alternative, pupils could be asked to present the results of the investigation to the class. Lead a class discussion on the ability of nature to slow down climate change. **Q: There are many reasons why we should look after plants and trees in nature. What are they?** A: They take in carbon dioxide and store it, avoiding further climate change, they are an important habitat for many different animals, they release oxygen for people and animals to breathe, they are an important food source for many animals, getting out in nature is good for our mental health, plants and trees improve the way our environment looks. **Q: Peatlands are made up of wet and boggy soil. This land can be damaged when it is drained, and is no longer full of water. Why do you think peatlands have been drained in the past?** A: To make the ground easier to travel across, to make the ground more suitable for building on top of, and to allow farming of animals and food crops to happen on that land. **Q: Bacteria in soil break down dead plants. Have a discussion with the people around you about the other places that you might find bacteria.** A: Explore all answers, as bacteria can be found practically everywhere on Earth. Bacteria can be found in our bodies, in our food, on plants, in soil and on most things we touch. There are bacteria that can make us sick, and bacteria that we need to stay healthy. There are even bacteria to be found in extreme environments, like volcanoes. A fact to share is that there are 10 times more bacteria in the human body than there are human cells.