Carbon Capture Lesson 2 | Lesson Outline

Learning intention:
To carry out an investigation into the amount of carbon dioxide that can be released from a chemical reaction, and relate this to the storage of carbon dioxide in carbon capture technologies.

Learning Lab®

Resources	**Worksheet 2a resources per group or pupil**	**Worksheet 2b resources per group or pupil**
Carbon Capture 2 – Introductory Video **3min 27sec** **Worksheet 2a** – Capturing Carbon **Worksheet 2b** – Designing Carbon Capture **Answers – Worksheet 2a & 2b** **Home Activity Outline** – Peatland Protection **Home Activity Worksheet** – Peatland Protection **Home Activity Answers** – Peatland Protection	3 x cups or glasses 4 x teaspoons of bicarbonate of soda Teaspoon Approximately 90mL water Approximately 100mL lemon juice Tablespoon Tray	Teaspoon Tablespoon Water Balloon 250mL plastic bottle Bicarbonate of soda Lemon juice Tray

Hook into the lesson	Play **Carbon Capture 2 – Introductory Video.** The video introduces the idea that technology can be used to capture carbon dioxide released from industry, and that this carbon dioxide can be stored or used in further industrial processes. The video asks the following question, giving opportunity to pause and discuss (or pupils could write individual answers): • **How is carbon dioxide released into the atmosphere? 34sec**
Activity	Give pupils **Worksheet 2a – Capturing Carbon.** The activity can be run either as: • a teacher-led activity with one or two sets of equipment at the front. In this case the instructions on the worksheet are for your reference only. • an individual activity with each pupil investigating on their own. • a group activity where the recommended maximum group size is four. Using the resources listed above, pupils will investigate a practical activity, discovering what happens when they combine lemon juice with bicarbonate of soda. They will recognise that a chemical reaction has occurred, and that it changes over time.
Extension	Give pupils **Worksheet 2b – Designing Carbon Capture.** Using the resources listed above, pupils will be challenged to design a setup that allows them to capture all of the carbon dioxide that is released in a reaction between lemon juice and bicarbonate of soda. They will be asked to write a report on what they made and how it was able to capture carbon dioxide.
Plenary	Lead a class discussion on human-made carbon capture. **Q: Have a discussion with the people around you. How do you feel about the continued use of fossil fuels, if carbon capture technology is also used?** A: Explore all answers. **Q: Why is it not possible to just continue using fossil fuels, capturing all of the carbon dioxide released, and storing it?** A: We would run out of space to store the carbon dioxide, and it isn't possible to continue burning fossil fuels forever because they aren't renewable and will eventually run out. We do want some carbon dioxide in the air because it's needed by plants.
Home Activity	Give pupils **Home Activity Worksheet – Peatland Protection.** Pupils will read a close reading passage on a day in the life of someone who works to restore peatlands. They will answer questions on the information contained in the passage.