

Online Resource 1

This document is the lesson plan that was used to deliver Workshop 1. It sets out key learning objectives and equipment required to run the lesson. It also breaks a 1 hour lesson down into small activities.

Lesson Plan – “You and CO₂” Workshop 1

Class: Year 9, 30 students	Date and Time:	Resources: Large whiteboard and marker pen whiteboards?	Topics: Chemistry, carbon footprints
Problems/Misconceptions Discussion based lessons -> have to be sure they get accurate facts		Aims and Objectives: Explain where CO ₂ comes from Explain the term “carbon” Practical examples of what makes up a carbon footprint Chemical reactions Enable access to the following 2 workshops	
Time	Teacher Activity	Pupil Activity	Board
5 – 7 minutes	Introduction		
3-5 minutes	Questionnaire	Inclusion – whiteboard answers	
10 minutes	Ask the class – what do you understand by the term carbon footprint?	Class participation, Put them in groups with a big sheet of paper to brainstorm. They report back to class.	Carbon footprint means: x Y Etc
10 - 15 minutes	How do we contribute to our carbon footprint? Power generation – heating is on, lights are on – what is the process there? Introduce the concept of a fuel. Followed by chemical modelling	Some responses sought from students Balloons for better demonstration of what quantities of CO ₂ look like Chemical modelling of the combustion of methane to CO ₂ using bunchems.	Equation Fuel -> Energy + CO ₂ Then expand equation CH ₄ + 2O ₂ -> Energy + CO ₂ + H ₂ O
10 minutes	How do we contribute to our carbon footprint? Introduce balloon concept.	Students calculate their own carbon footprint using reference sheet. Students then get balloon tokens and work together as a group to reduce group’s footprint by 1/3.	
10 minutes	Conclusions, including class feedback to answer “What could you do to reduce your carbon footprint?” Repeat questionnaire quickly.	Class feedback	Feedback ideas from groups