

## Lesson Plan

### Pillars of Growth: Energy and Low Carbon

#### Overview

This is a 60-minute session where learners are introduced to the Energy and Low Carbon industry including potential careers and pathways. They are set a task, working in groups to assemble the "hydrocar", a model car with a fuel cell which produces hydrogen from water and then uses it to power a motor.

#### Learning Objectives:

**Aim:** To learn about careers in the energy sector.

#### Objectives:

- To understand the difference between renewable and non-renewable energy resources, and their impact on the environment.
- To use alternative materials (hydrogen) to create energy and then consider the effectiveness of those materials for long-term energy production.
- To explore the variety of careers within the energy industry and potential routes into them.

#### Success Criteria:

- All learners will have powered a hydrocar using hydrogen.
- Learners will be able to understand the importance of renewable energies and identify opportunities within Lancashire to grow these industries

#### Resources (provided):

Hydrocar box + inventory + instructions  
 Beakers  
 Box of small barriers  
 Lesson Plan  
 PowerPoint slides (inc. instruction video)

#### Resources (additional):

Water  
 Paper towels

**Organisation:**

Facilitator will talk class through introduction slides, using the notes (or play the recorded video presenting the slides), before putting learners in groups and supporting them to build the hydrocar. To finish, facilitator will go through final slides on careers and pathways.

Time	Facilitator's Activity	Learners' Activity
15 mins	<b>Session Intro</b> Introduce topic, explain objectives and success criteria and describe the Energy and Low Carbon sector and why it is significant.	<b>Session Intro</b> Learners listen, ask relevant questions and take notes where needed.
5 mins	<b>Task Intro</b> Explain the concept of producing hydrogen to fuel a hydrocar. Put learners into groups. Handout instructions and inventory sheets and play the instructions video on the PowerPoint.	<b>Task Intro</b> Learners listen actively, make notes if needed and look at handout instructions.
25 mins	<b>Task</b> Give learners 20 mins time limit to follow instructions and build the hydrocar. Assist groups where needed. At the end, ask learners to put everything back in boxes.	<b>Task</b> Working in groups, learners follow instructions to build a hydrocar. At the end, learners disassemble hydrocars and put them back in boxes.
10 mins	<b>Careers and Pathways</b> Learn about the relevant pathways within this sector.	<b>Careers and Pathways</b> Look at the industry and potential for growth within Lancashire. Review education pyramid and discuss pathways.
5 mins	<b>Pack Up</b> Ensure all resources are returned and stored securely in the box, ready to be used again.	<b>Pack Up</b> Return hydrocar, instructions, inventory sheets and all resources.