

Lesson Plan

Pillars of Growth: Energy and Low Carbon

Learning Objectives:

Aim: To learn more about the Energy and Low Carbon industry in Lancashire

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

Resources (provided):

PowerPoint (inc. instruction video)

Hydrocar box + instructions + inventory

Box of small barriers

Beakers

Resources (additional):

Water

Paper towels

Organisation:

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

Time:	Teacher's Activity	Learner Activities:
15 minutes	<u>Session intro</u> Introduce topic, explain objective and success criteria.	<ul style="list-style-type: none"> Using the PowerPoint, describe the Energy and Low Carbon sector and why it is significant. Facilitate discussion on renewable energies and why they're needed.
5 minutes	<u>Task intro</u> Explain the concept of producing hydrogen to fuel a hydrocar.	<ul style="list-style-type: none"> Introduce the task. Handout instructions and inventory sheets and play the instructions video on the PowerPoint.
20 minute	<u>Task</u> In groups, students will follow instructions to build the hydrocar.	<ul style="list-style-type: none"> Give the students a 20min time limit to follow the instructions and build the hydrocar. Facilitator to assist groups where needed Disassemble hydrocars and put back in boxes
10 minutes	<u>Careers and pathways</u> Learn about the relevant pathways to related industries.	<ul style="list-style-type: none"> Look at example industries and potential for growth within Lancashire Review education pyramid and discuss pathways.
5 minutes	<u>Pack down</u> Ensure all resources are returned and stored securely in the box ready to be used again.	<ul style="list-style-type: none"> Return hydrocar, instructions, inventory sheets and all resources.