

Electricity

Lesson 2 | Lesson Outline



Learning intention:

Pupils will understand that analysis of data and numbers is essential in understanding how we can meet electricity demand. Pupils will consider technologies that can help electricity supply meet demand.

Resources Introductory Video - My Energy Future (4min 35sec) Worksheet 2a - Supply & Demand Worksheet 2b - Supply & Demand Extension Worksheet 2a & 2b - Answers Home Activity Outline - Bird Bother Home Activity Worksheet - Bird Bother Home Activity Answers - Bird Bother	
Hook into the lesson	<p>Play Introductory Video – My Energy Future.</p> <p>The video introduces the energy mix, and highlights that as the energy mix changes over time, a skilled and knowledgeable workforce will be needed to work in many different roles. The video asks the following questions, giving opportunity to pause and discuss (or pupils could write individual answers):</p> <ul style="list-style-type: none"> • How do we use fossil fuels in our daily lives? (49 sec) • What jobs do you think the energy industry might need in future? (1min 49sec)
Activity	<p>Give pupils Worksheet 2a – Supply & Demand.</p> <p>Using information on Instruction Slides - Supply & Demand, pupils will create a bar graph showing electricity demand in a fictional town and explain why electricity demand changes throughout the day. They will plot points on the graph to show how much electricity could be generated by solar panels, before offering suggestions for other technologies that could help meet electricity demand.</p>
Extension	<p>Give pupils Worksheet 2b – Supply & Demand Extension.</p> <p>Continuing with Instruction Slides - Supply & Demand, pupils will calculate how much electricity would still be required for the fictional town if they installed solar panels. Pupils will also be asked to calculate how much electricity generated using solar panels might be wasted. They will be asked to explain why it is important that towns and countries use a mix of renewable technologies to generate electricity.</p>
Plenary	<p>Lead a class discussion on the following questions, related to renewables and meeting electricity demand.</p> <p>Q: When would wind turbines not be able to generate electricity? A: When there is very little windy weather.</p> <p>Q: When would solar panels not be able to generate electricity? A: At night. Solar panels can still generate electricity when it's cloudy, just not quite as much as a sunny day.</p> <p>Q: Why do you think it's important that we have an energy mix, and not rely on one method to generate electricity in the future? A: If we were to rely on one type of technology, there will be times when the technology might not be able to meet demand, such as solar panels.</p> <p>Q: There are companies who have developed large batteries that could be installed across the UK to store extra electricity generated from renewables. How could installing these batteries be helpful? A: The electricity that is stored could be used when there isn't enough being generated from the technology itself, such as wind turbines. This means we wouldn't need to rely on fossil fuels to meet demand when renewables can't.</p>
Home Activity	<p>Give pupils Home Activity Worksheet – Bird Bother.</p> <p>Using grid coordinates, pupils will map the flight paths of different species of birds at an offshore location. They will then decide where is appropriate to build offshore wind turbines, avoiding the flight paths.</p>