

Science

Energy in the home

Overview of Session



Session Length | 60 mins



Age Group | 11-14 Years

Learning Outcomes

This lesson looks at energy in the home and introduces students to methods of conserving energy. They will also calculate payback time and the cost of energy consumption for appliances.

Learning Outcomes

- To be able to identify methods of saving energy.
- To calculate the cost of energy from meter readings.
- To use reasoning to draw conclusions based on calculations.

Lesson Overview

This lesson fits into the energy section of the KS3 syllabus. It allows students to look at Northern Powergrid's main roles in the community and also enables students to think about energy saving.

It develops critical thinking and reasoning skills and allows students to use calculations to justify decisions. The development of energy saving ideas links to citizenship as it allows students to think responsibly and also links to managing money and budgeting.

Key Terms and Principles

Electricity, energy, kilowatt hours, energy consumption, payback time.

Resources

- PowerPoint presentation
- Worksheet

OK, Let's Go!



Part 1: Introduction



Suggested length | 20 mins

Explain who Northern Powergrid is and the work they do.

Class discussion

- Encourage students to come up with different methods of producing electricity.



- PowerPoint presentation

Extension task

Ask students what the advantages/disadvantages of each energy production technique are.



Part 2: Body of Lesson



Suggested length | 40 mins

Think, pair, share

- Students are to come up with methods of saving energy around the home. Answers may include ideas such as draft excluders, loft insulation, turning off appliances and lights when not in use etc.
- Students are then to be shown advice about how to save energy around the home. Students are then to fill in the worksheet and explain how these methods would help save energy.

Introduction to energy costs

- Students are shown an example bill and asked to pick out any interesting features.
- Students are introduced to energy cost calculations, solutions are included in the presentation.

Group task

- Students are shown energy labels and then asked to come up with possible questions based on them. They could use values such as estimating how many times a typical family uses a washing machine in a week, the energy used per cycle and how much energy is consumed by an average family in a week.

Scenario

- Students are given information and must use this to determine which energy saving method they should recommend for Northern Powergrid to promote in the area. Students will need to calculate payback time and include explanations as to which method would prove most cost effective and why.

Plenary

- Students' answers are shared and questioning is used to determine the depth of reasoning.

Next Steps



Ask students to look around their own home for energy saving methods.
Could they incorporate 3 energy saving ideas into their daily routine?
Which 3 methods, and why?

Resources



- Worksheet



- PowerPoint presentation

