

Science

Risks and hazards

Overview of Session



Session Length | 60 mins



Age Group | 11-14 Years

Learning Outcomes

A one or two lesson project aimed at lower KS3.

Students will learn about the dangers associated with electricity, including symbols and their meanings. Ultimately, they will be creating a video highlighting the dangers of electricity.

Learning Outcomes

- To identify risks associated with electricity.
- To draw conclusions about safety risks from data.
- To be able to communicate hazards associated with electricity to a target audience.

Lesson Overview

The lesson will encourage students to think about the word electricity and associated words/ phrases.

Students will review data linked to electricity and will learn about staying safe before producing a video highlighting the dangers of electricity.

The lesson links to topics on the science curriculum such as power, current and voltage. It also links to the physical safety element of PSHE. Students will learn technical language, practise comprehension and develop oral skills.

Key Terms and Principles

Electricity, voltage, current, power, safety, hazard, substation, pylon, electrocution.

Resources

- PowerPoint presentation
- Dangers of Electricity Handout
- Matching Cards
- Roleplay Cards
- Video equipment (for extension activity)

OK, Let's Go!



Part 1: Introduction



Suggested length | 20 mins

Explain who Northern Powergrid is, and its role in the electricity industry.

Task

- Write 'Electricity' on the board or ask students to write it in their workbooks. In pairs/ groups, encourage students to discuss their knowledge and understanding of electricity. Students should jot down words/ phrases associated with electricity. They could write them onto post-it notes before sticking them around the original word. Discuss as a class.

Resources



- PowerPoint presentation

Part 2: Body of Lesson



Suggested length | 40 mins

Introduction

- Using the PowerPoint, ask the class which electrical appliance they think uses the most electricity.
- Ask students to work in groups /pairs. Provide students with the Household items worksheet.
- Students order items into a hierarchical pyramid of highest through to lowest wattage.
- Encourage students to give reasons for their choices.
- Students can be given worksheets with the wattage already provided, if needed.

Resources



- PowerPoint presentation



- Worksheet

Hazard signs

- Show students the Danger and Hazards symbol slide.
- Students should discuss what each sign means. For an extension activity, ask students to provide examples of where they might see them.



- PowerPoint presentation

Task

- Students are given a picture with a number of electricity hazards around the home.
- Students should circle the hazards and as a class discuss how they may be avoided.
- This can also be completed as a class discussion using the PowerPoint.

Extension task

What other hazards can you think of?

Discussion

- How can electricity cause electrocution and fire?

Task

- Students are given an article from the HSE (see worksheet provided). They need to read it and then share with their partner what they think makes electricity dangerous. This is then shared in a class discussion.

The next activity introduces students to the dangers outside the home.

- Students come up with some ideas about possible dangers and then these are discussed.
- Then students are put in groups and each group is given a card with a scenario that they need to act out to the class. No speaking!
- The class then guess what the situation is and discuss risks in that scenario.

Resources



- Worksheet



- PowerPoint presentation

Resources



- Worksheet



- Role play cards



Lesson 2: Extension Project



Suggested length | 20 mins

Scenario

- Students to be told that, to keep people safe around electricity, we need to advise young people of the dangers of electricity. Students will come up with an idea for a video highlighting the dangers of urban exploring with an emphasis on electrical equipment.
- Show students a section of this video. This clip is intended for a much younger audience. Ask them to pick out the main messages for inspiration and to emphasise the importance of having up-to-date electrical safety advice.

www.youtube.com/watch?v=4YrNIy6jhPo

- Discuss strengths and weaknesses of the video. How would they go about making a video with the same key messages that was more suitable for their age group?
- Students plan their own video and create a script.

Resources



- Video (YouTube)

Stretch Activity

- Students to use video equipment to create their own video clips (in groups).

Plenary

- Students to share their videos/ video ideas with the class.
- Each group must receive feedback from their peers, encourage students to give praise and areas for improvement.

Next Steps



Students to share their videos to younger age groups to advise them on how to stay safe around electricity.

