

Lesson Plan: Electrical Safety (age 11 – 14) – Home Electrical Safety.

Objectives:

Explain how the earth wire, together with a fuse, provides protection for the user. Know how fuses and circuit breakers work.

Lesson introduction (15 min):

Recap on previous learning on electric current, simple circuits and symbols. Introduce subject area and refer students to the 'Electrical Safety' section at www.twothirtyvolts.org and the House Electrical Circuits Student Revision Notes in the 'Education' section. Allow time for students to review these. Show how 3-pin plug and cables have live, neutral, earth wires and fuses and explain role of each. Explain experiment and learning objectives.

Lesson activity (25 min):

Group students in pairs and task them to:

- Students label diagrams of plugs with colours and names of parts on Worksheet.
- Students wire their own plug.
- Students review samples of wrongly wired and damaged items and record on Worksheet what is wrong.

Extension for more able students: write instruction leaflet on how to wire a plug.

Lesson demonstration (10 min):

Select some of the students to inform the rest of the class about their findings.

Lesson review (10 min):

Recap on learning regarding electrical safety from the experiment, and why electrical appliance are now always supplied with a plug fitted, and get students to complete Electrical Safety in the Home Student Quiz at www.twothirtyvolts.org to establish levels of understanding.

Resources required:

Display of incorrectly wired plugs, damaged plugs, fuses and circuit breakers. Sufficient supply for student group of: Plugs, cable, and screwdriver. Access to internet for www.twothirtyvolts.org

Expected Outcomes:

By the end of the session students will be able to explain how the earth, together with a fuse, provides protection for the user, know the features of a safe plug, and describe the advantages of circuit breaker.

Student sheet: Electrical Safety – Home Electrical Safety.

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By the end of the session you will be able to explain how the earth, together with a fuse, provides protection for the user, know the features of a safe plug, and describe the advantages of circuit breaker.

Resources required:

Display of incorrectly wired plugs, damaged plugs, fuses and circuit breakers. Plug, cable, and screwdriver. Access to internet for www.twothirtyvolts.org

Introduction:

Access and review the 'Electrical Safety' section at www.twothirtyvolts.org and the House Electrical Circuits Student Revision Notes in the 'Education' section.

Activity:

Working in pairs undertake the following tasks:

- Label diagram of plugs with colours and names of parts on the Worksheet.
- Wire a plug and ask teacher to review once complete.
- Review samples of items and record on Worksheet what is wrong.

Further work:

- Complete Electrical Safety in the Home Student Quiz at www.twothirtyvolts.org .
- Produce instruction leaflet on wiring a plug safely and correctly.

Linked Resources

www.twothirtyvolts.org:

'Electrical Safety' section

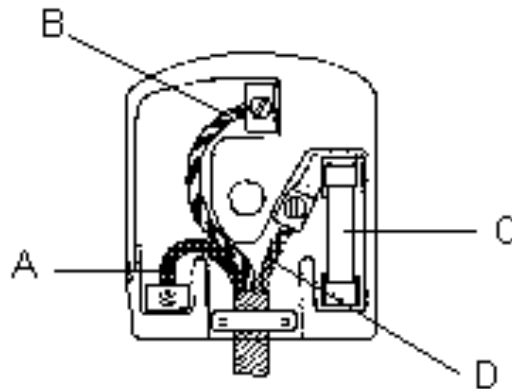
House Electrical Circuits 11-14 Student Revision Notes

Electrical Safety in the Home 11-14 Student Revision Notes

Electrical Safety in the Home 11-14 Revision Quiz

Worksheet: Electrical Safety – Home Electrical Safety.

Electric Plug:



Observations on Displayed Items: