DOMESTIC APPLIANCE MAINTENANCE

Lesson 10: Teacher's guide

Electrical power cables

A· Electrical power cables and their safe uses

B· Competencies

Main competency:

1. Safely handle simple tools, electrical components, and potentially hazardous materials.
2. Identify and mitigate potential electrical hazards in appliances and work environments.
3. Use basic tools safely for maintenance and repairs of domestic appliances.

Sub competencies:

- Demonstrate proper handling of basic tools (e.g., screwdrivers, pliers).
- Handle electrical components (wires) with care to avoid damage or injury.
- Recognise common electrical hazards (e.g., exposed wires, water around appliances)
- Propose practical solutions to mitigate identified hazards (e.g., unplugging appliances, repairing broken wires).
- Handle tools safely to avoid injury or damage to components.
- Select appropriate tools for the task (e.g., screwdriver for screws, pliers for wires).

C. Learning outcomes

By the end of this lesson students should be able to:

1. identify the basic parts of a power cord.
2. recognise signs of damage in power cords (e.g., fraying, worn insulation).
3. understand what a fuse does and how to check whether it is in working condition or blown.
4. perform a simple visual continuity test on a power cord.

D. Resources and materials

Set of items for demonstration:

- Sample power cords (safe, non-live): one with plastic insulation, one with fabric coating, one frayed (or photos/drawings).
- Plug with removable fuse.
- Multimeter (optional, not used for actual testing).
- Safety gloves and goggles.

E. Implementation guidelines

Introduction

- Show a picture of a damaged cord similar to the one shown below.

- Ask the students to explain whether such a wire can be used safely.
- Discuss a few key safety rules, such as:
  - ✓ Never touch cords with wet hands.
  - ✗ Do not use cords that are broken or frayed.
  - ✓ Always unplug before checking any electrical appliance.
- Ask the students to read the above rules aloud to emphasise their importance.

Types of power cords

- Ask the students to recall and describe the different types of power cords/cables that they have seen.
- Show real examples of power cords or you can use the pictures below.

Plastic coated power cord	
Fabric coated power cord	
Frayed power cord	

- Ask the students to:
  1) identify the different types of power cords.
  2) explain why we have different types of power cords.
  3) state which power cord is not safe for use.

- Tell the students that the fabric insulation:
  - » ensures that the cord does not become frayed/damaged easily (due to friction/rubbing) as compared to one with plastic insulation.
  - » does not melt if the cord comes into contact with the base plate of a hot electric iron.
- Explain that there is the risk of electric shock if frayed cables are used.

Visual inspection for frayed/damaged cord

Teacher will guide the students on how to check whether a cable is suitable for use without connecting it to the mains.

- Steps to inspect the whole cord:
  1. Unplug first.
  2. Look for cuts, kinks, or exposed wires along the whole length of the cord.
  3. Gently bend the cord to spot hidden breaks along the whole length of the cord.

Let students inspect the sample cords (safe ones only).

Recap

Summarise the key points:

- Power cord with fabric coating is used for electric iron.
- Power cords with cuts, kinks, hidden breaks, frayed or exposed wires are not safe.

F. Assessment (in worksheet)

G. Extension activity

Additional ideas that the teacher can implement could be:

- Practice unplugging devices safely.
- Create a poster: "How to check a cord".
- Arrange for a short video projection on electrical safety.