

Sikaru Saathi

[Repair 2 : Electric Kettle, Heater]



A little background of this lesson:

- Welcome to day five of Sikaru Saathi Bootcamp! Today's lesson is focused on the crucial skill of repairing electronic devices, specifically electrical kettles and heaters.
 - These common household items often get damaged and thrown away, leading to unnecessary e-waste. However, with the proper techniques and knowledge, repairing them can be a simple and effective way to extend their lifespan and reduce environmental impact.
- In this class, you will learn how to diagnose and repair common issues with electrical kettles and heaters. From identifying faulty components to replacing them, you will gain the skills and knowledge needed to tackle these repairs confidently.
 - We hope that by the end of this class, you will feel empowered to repair your own electronic devices, and understand the importance of repairing rather than disposing of them.

Materials Required

Component Name	Number
Universal	
Speaker system (Optional) (Using this to play music when participants are working in stations)	1
Per Group	
Dismantling Station	1
<u>Electric kettle</u>	1
<u>Heater</u>	1

Repair Kit	1
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Repair Kit contains:

- [Multimeter](#)
- [Soldering Kit](#) (Soldering iron, Stand, tin, wax)
- [Wire cutter](#)
- [Pliers](#)
- [Electrical Tapes](#)
- [Saftey gloves](#)
- [Saftey goggles](#)
- [Hammer](#)
- [Hot Glue gun](#)
- [Screw Driver set](#)

Curiosity

[Curiosity is an essential element of learning, and in this section, we will aim to engage participants with questions that encourage curiosity and critical thinking about today's lesson.]

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Activities

Energyzer

- Pick a fun game that will allow students to get to know each other and play it with the students. We recommend games that require physical movement so that the students get energized.

Recap of previous class

In the previous class, participants learned about multiplugs, its connections, and a way to repair them. Participants also learned upcycling and tried making their own small projects by upcycling e-waste. Here are some questions that can be asked to participants to recall previous sessions and questions to think about.

Multiplug

- What did you learn from the session on repairing multiplugs?
 - Were there any challenges you faced while repairing multiplugs? If so, how did you overcome them?
- What was the most challenging aspect of repairing multiplugs for you?
- How confident do you feel now in your ability to repair multiplugs?
- Have you repaired any multiplugs since attending the session? If so, how did it go?

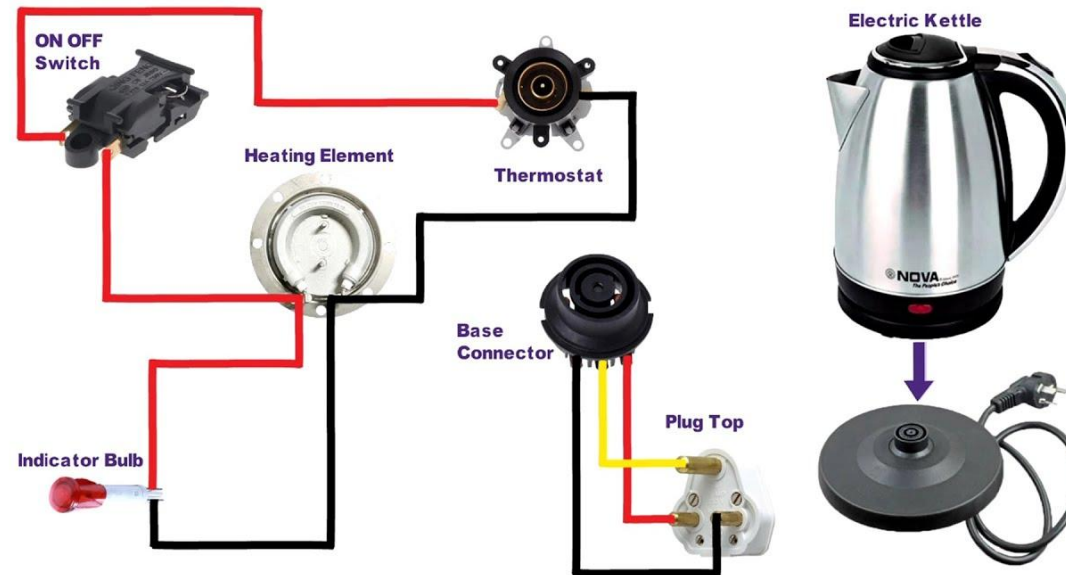
Upcycling

- Did you have any prior knowledge or experience with upcycling or e-waste recycling before attending the session?
- Were there any challenges you faced while upcycling using e-waste? If so, how did you overcome them?
- How confident do you feel now in your ability to upcycle using e-waste?

Repairing Electric Kettle

- Facilitator shares basic of repair:
 - Safely first
 - Identifying the problem
 - Continuity check
 - Voltage check in wires/to the components that they are working on
 - Refer/Research for wire diagram to understand circuitry
 - Calling our expert before test
- Now Facilitator invites an expert and Here are some instructions to give to participants before introducing how to repair a Electric kettle:
 - **Safety first:** Ensure that the power is turned off and unplugged before attempting any repairs. Always wear safety gloves and protective glasses while working on any electrical appliance.

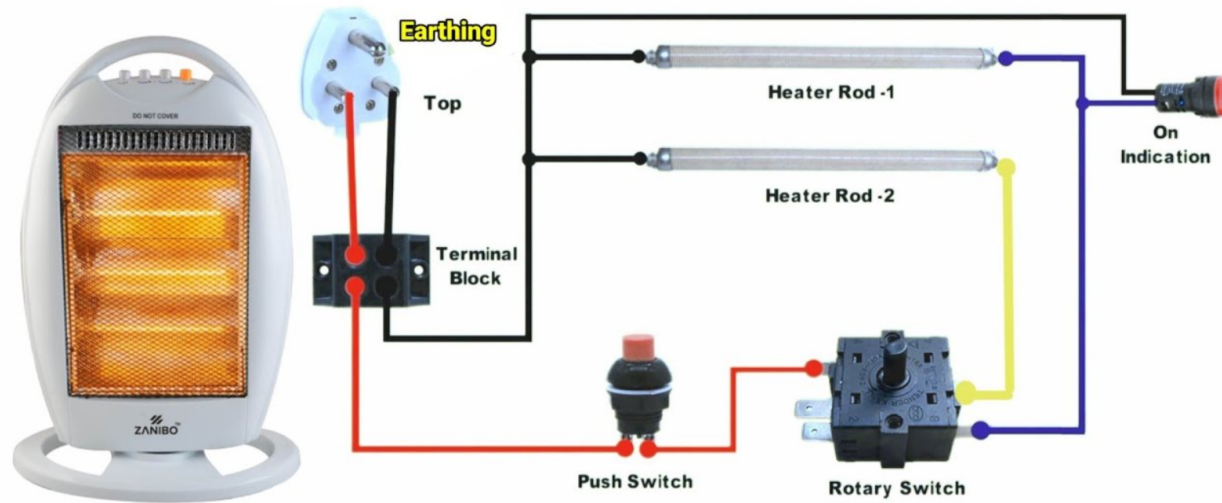
- **Identify the problem:** Before attempting any repairs, it is important to identify the problem with the electric kettle. Check to see if the kettle has a loose connection, if the heating element is faulty or if the thermostat is not working properly.
- **Get the necessary tools:** For repairing an electric kettle, you will need a screwdriver, pliers, a multimeter, replacement parts if necessary, and a descaling solution (**Baking Soda**) if the issue is with the buildup of minerals inside the kettle.
- **Follow the manufacturer's instructions:** Electric kettles have different designs and wiring configurations. Be sure to consult the manufacturer's instructions to ensure that you connect the wires correctly.



- [\[Video on How to repair Electric Kettle\]](#)

Repairing Heater

- After participants successfully repair an electric kettle, now it's time to learn another item in the list which often gets damaged and not often repaired: A heater.
- Again an expert takes over this portion by reemphasizing necessary elements before any repair.
 - Safety first
 - Identifying the problem
 - Get the necessary tools
 - Follow the manufacturer's instructions



[[Video on How to repair Heater](#)]

Problem statement recap

- Facilitator recaps bootcamps problem statement:
 - It's the year 2200 and humans have abandoned earth. It has become covered with trash from products sold by powerful companies, and we ran out of resources to grow food, build buildings, and create the electronics that make our lives convenient. We now live in a rocket ship slowly traveling in the atmosphere, searching for another planet that can support life. WALL-E, a garbage collecting robot, has been left on Earth to clean up the mess so that humans can once again inhabit the planet. WALL-E is a curious robot, often playing with the electronics he discovers. WALL-E is alone on Earth so he frequently feels lonely. When he has free time, he tinkers with parts to try and create something useful to his life or to create a toy that can keep him entertained. WALL-E looks for useful electronic parts to add to his inventory to invent new things. Help WALL-E by scavenging through junk to find parts and creating new inventions to keep him entertained!
- Facilitator informs the participants that in the previous sessions, they have gained knowledge on topics such as electronic waste, electronic repair, and fundamental electronics. The upcoming session will be dedicated to working on a project that aligns with the problem statement presented in the bootcamp.