

**Productive task**: Wiring of room, testing of earthing , repair of electric wiring , making proper wiring in houses of disadvantages communities as a community service

**Concept**: Ohms law, Colour coding of wires, Types of wires, Types of wiring, Repairing Maintenance of wiring, Testing of Earthing.

**Tools**: Screw driver, tester, multimeter, pliers, hammer, hacksaw

**Class-Age Group**: Class 9th, 14+.

**Basic Electricity**

* *Wiring of the computer room*
* *Adwaita Vartak*

*Open Education Resource*

**Concept Map (Image):**



Objective of productive work – WIRING :

i) Student will able to do electric wiring of his own house. Repair wiring of his house.

ii) Will able to follow basic safety instruction and know how to use electric tools.

iii) Will able to calculate energy requirement of household and able to judge the consumption pattern. He will able to calculate cost of consumption.

iv) Will able to think and express about problems/ difficulties and current scenario about electricity in his own community & relate it to issues linked to national/global-social & political issues.

**Productive task 1: Introduction to the TASK on hand:**

Teacher to introduce students about objective of the lesson, doable objectives etc. He can use following resources 🡪

A) Showing following video in computer class.

i) U-Tube link :

B) Ask children to read biography of following person & tell story in the class

\* Thomas Alva Edison \* **PPT is attached**

 C) Teacher: To present PPT/Video of following & conduct discuss and explanation with student.

PPT showing Time line of electricity, Voltas, Edison, Faraday.. Bose.. In India..

Discussion questions @ when electricity came to their village.. ..

Teacher can take various activities as suggested in word document attached [wiring introductory activities SS]

**Productive task 2: Knowing about electricity in our own life, community and surrounding**

Teacher can make use of **PPT attached**: Electric Bill & audit to teach electricity bill calculation.

**HPNPDL Session:**

After every activity or work exercise, all class will assemble together and brainstorm various questions. They will generate list of questions - What, Why, How, When, Where? Attempt should be made that every student will ask min 2 questions.

The questions will be recorded. Teachers may able to answer some of them. It is not necessary to answer every questions but such questions must be recorded as ‘HPNPDL’ { Hame pata nahi par dhudh lenge }

Sample questions:

i) What is average electricity bill of family?

ii) Which instrument needs maximum power?

iii) How many houses in our village, which do not have electricity? Why?

iv) Why electricity rates are different for different sections?

v) Why transformers are used? …

**Productive Task 3: Selection of task**

**Productive task 2:**

Depending upon the need of school or community, resources available with schools and number of students, tasks for doing electric wiring will be selected. Students / teachers may be involved in the selection of task. Make sure that Girls will able participate equally.

Suggested task will be :

i) Wiring of room ii) Testing of earthing iii) repair of electric wiring iv) making proper wiring in houses of disadvantages communities as a community service. V) House wiring in students home (Students should be asked to inquire at their home for any wiring/repair requirement). vi) If work is done in the private home then cost of material to be borne by the customer.

(If school need to spend the money on any productive work and return are not expected then it should be done at Public places/ poor household etc.)

**Productive task 4: Understanding the Concepts**

Teacher to conduct classroom discussion on following topics. He can use resources such as power point/video as given below.

i) Show PPT attached ‘What is electricity’ & show video (VA –Basic Electricity CD)

ii) Safety: Teacher will give instruction about Safety, Show video: U-Tube about electric safety

ii) Activity: Introduction of tools, wiring material etc. Students may be asked to take a round in school building or as a home work to list out different fitting, differences, types of switches, holders, plug, sockets, cables, thicknesses, different manufacturers, different types of screws used, ISI mark etc.

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iii) Electric circuits

Teachers will explain circuits and series and parallel circuits. He may use PPT attached Electric circuits – ohms law

iv)Concept: Work - Energy, work

Activity: Relation between work & energy, Volt 🡪 Potential difference, Current 🡪 Flow, Resistance will be taught.

Teacher may use VA Video attached.

**Productive Task 5 : Drawing map of Electric wiring job undertaken**

Teacher will explain different symbols used for electric wiring. Students were asked to draw these symbols in their notebooks.

Important symbols: wire, switch, bulb, power source, AC-DC, Danger, Fuse, Instrument (load), ground… Sample chart is attached.

Basic of deciding position of electric switch. {Room light close to door, plug at the height , not reachable to children..} PPT Video To be developed

Teacher will also introduce them with various factors for design. Like number of bulbs for proper lighting, Unit of measurement of light intensity – lumens, Branding/Quality of fittings.

Teachers will ask students to draw electric diagram of classroom, it will be to-the-scale, it can be symbolic. They will ask to draw diagram of the ‘Wiring Job’ selected. {May be students need be taught scale : proportion.. }

**Productive Task 6 : Estimating the material required for the jobs.**

Teacher with the help of students will make estimate of quantity of material required. He will introduce them to branded material/ ISI material etc. Ask them to visit shop and get the quotation. Word document is attached

Teacher may use : PPT of wires and cables & wiring accessories is attached

Teacher will introduce them with accounting instruments like Quotation / Estimate – purchase – Invoice word document

Students will be asked to purchase the material from the market.

**Task 7: Celebrating the task**

 Students should document the work done.

 Costing of the job done. They should write a report and may submit it (if possible) computer typed and with photographs. For Costing- Document attached

**Task 8: Expressing their experiences**

 Students will be asked to Write Poems/Essays or make Poster exhibition on one of the following topics….It can be in any language

i) Hydropower generation or Large Dams ----Advantages and effects on environment and society.

ii)Pollution by mining and thermal power plants.

iii) NO NUKES/The ‘CLEAN NUCLEAR POWER’.

iv)Our energy requirements: Past, present and future.

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