

**SALWAN PUBLIC SCHOOL AFTERNOON,
RAJENDRA NAGAR
CLASS – X SCIENCE
LESSON PLAN
CHAPTER 12 : ELECTRICITY**

TOPIC	HEATING EFFECT OF CURRENT AND ITS APPLICATIONS ELECTRIC POWER
DURATION	2 PERIODS (Approx. 40 minutes each) Period 1: Heating effect of current Period 2: Electric power
PRE- REQUISITE FOR THE COURSE	This topic requires knowledge of • Electric current, Electric potential, Resistance etc. • Series and Parallel combination of resistances
LEARNING OBJECTIVE	Students will be able to: • State and explain Heating effect of current. • List applications of the effect. • Identify and explain factors responsible for production of heat by a conductor. • Solve numerical based on heating effect of current. • State and explain electric power. • Explain unit of power and commercial unit of energy • Solve numerical related to electric power. SKILLS and COMPETENCIES: 1) Critical thinking and problem solving (working effectively with others), 2) Character building (Taking tasks fearlessly and achieves goals.) 3) Communication (evaluating the information critically and competently). 4) Collaboration (responding open mindedly to different ideas) 5) Creativity (developing, implementing and communicating new ideas)
TRANSACTION METHODOLOGY	Transaction of the Lesson Plan: Activity, Think Pair Share The facilitator begins the session with discuss on the question Why do certain bodies become hot when we pass current through them, like electric iron, Electric bulb etc. After the discussion, facilitator introduces the concept of heating effect of current and explains it to the student. Facilitator will ask the students to identify other applications of the effect. The facilitator discusses with the students the factors affecting the heating

produce by a conductor. Heat produce is

- ✓ directly proportional to the square of current through the conductor.
- ✓ directly proportional to the resistance of the wire
- ✓ directly proportional to the time for which current passes through the conductor.

Think Pair Share: Discussion of topic through Collaborative Learning: 15 min (Critical Thinking, Collaboration)

Using the knowledge of Heating effect by a conductor, the facilitator asks students to predict what would happen to the heat produce by a wire:

- If it is folded such that its length becomes half?
- If current passing through the wire is doubled?
- If time for which the current flowing through the wire is reduce to $\frac{1}{3}$ of its initial value?

Explain and summarize

The facilitator then explains and define the following terms:

Electric power, SI unit of power, different relations to calculate power commercial unit of energy and its relation in term of joules.

Demonstrates to the students how to convert power of a device in watts to commercial units. Discuss with the student ways to calculate the energy consumed by house hold device like tubelights, bulbs, TV, AC etc.

Discussion of topic and Guided Practice 20 min Inquiry based learning (Critical Thinking and Problem Solving)

After the discussion, the facilitator demonstrates to the students how to solve numerical problems related to heating effect of current and electric power

Guided practice followed by Independent Practice- NCERT questions to be discussed in the classroom.

Value Points learned: -

- Heat produced by a conductor depends upon the current passing through the conductor.
- Heat produced is directly proportional to the resistance of a conductor.
- Heat produced depends on time interval for which current passing through the conductor.
- Electric power and its SI unit
- Commercial unit of energy and its relationship with energy in joules.
- To solve numerical using formula of electric power and heat produced by a conductor

	Closure: 5 min A short oral test would be taken to check proper assimilation of the topic discussed The facilitator helps the students in recalling the factors related to heat produced by a conductor, applications of the effect, commercial unit of energy and different relation to calculate the power of circuit or resistance. Revision Questions: - How does the heat produce by a conductor depend upon its resistance? How much the heat produce by a conductor would be affect, if the current passing through the conductor is reduce to half of its initial value? Define one watt. What is the commercial unit of energy? What are the different formulas for calculating power?
LEARNING OUTCOMES	Students would be able to: • Explain the heating effect of current • Explain different factors on which the heat produced by a conductor depends. • Explain electric power. • Explain SI unit of power and commercial unit of energy. • Solve numerical base on heating effect of current and electric power.
SELF STUDY, HOME WORK, ASSIGNMENTS	Students would do the given questions in their H.W. notebooks: • Define electric power and its SI unit • Explain commercial unit of energy and its relation in terms of joules. • Define heating effect of current. • List applications of heating effect of current. • Solve numerical problems related to heating effect of current and electric power.