

CLASS - X
CHAPTER 12: ELECTRICITY
LESSON PLAN - 1

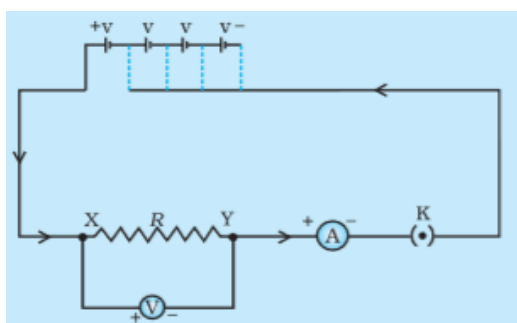
TOPICS	ELECTRIC CHARGE, ELECTRIC CURRENT AND ELECTRIC CIRCUIT ELECTRIC POTENTIAL, POTENTIAL DIFFERENCE OHM'S LAW
DURATION	4 PERIODS (Approx. 40 minutes each) Period 1: Electric current and circuit Period 2: Electric potential and Potential difference Period 3: Components used in circuit diagram and Ohm's Law Period 4: Questions based on the topics covered
PRE-REQUISITE FOR THE COURSE	This topic requires knowledge of: - Types of charges and interaction between them. - Knowledge about simple electric circuits and their components.
LEARNING OBJECTIVES	Students will be able to: - Understand that free electrons are the charge carriers in conductors - Define electric current - List the factors that control or regulate the flow of current in an electric circuit. - Explain the function of components 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)
TEACHING METHODOLOGY	Transaction of the Lesson Plan: Recall, question, connect and summarize The facilitator helps the students in recalling the activity done by them in previous classes of glowing a torch bulb on connecting it with a cell. Brainstorming Questions: - What is the source of current in a circuit? What makes the charges flow in a circuit? What type of charge carriers constitute current? Connect: Activity: The facilitator will divide the students into groups of 4 and the students perform in groups to make an electric circuit using potatoes (or lemon), connecting wires, LED bulb and a switch. The students conclude that fruits and vegetables conduct electricity. Explain and Summarize: The facilitator then explains and define the following terms: electric current, unit of electric current, potential difference and unit of potential difference.

Chemical reaction in a cell leads to excess of negative (or positive) charges on one electrode and deficiency of the same charge on the other electrode. This results in development of electric potential difference between the two electrodes of a cell.

When a cell/battery is joined in a closed electric circuit, the potential difference between its terminals causes an electric current in the circuit (or electric current starts flowing through it!). There are many types of electrical conductors such as metallic wires, ionic conductors, electrolytes etc.

Activity to study the relation between potential difference through a conductor and the current through it: Ohm's Law

Students are asked to set-up an electric circuit based on the given circuit diagram. This circuit may comprise a cell (or a battery), a resistor, an ammeter, a voltmeter and a key.



- Students should be made to realise that it is immaterial where in the circuit the ammeter and key are connected as long as they are connected in series with the resistor/cell.
- The facilitator may also clarify that the Ohm's Law is valid only for conductors provided their temperature do not change.

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

Value Points learned:-

- Flow of charges in a definite direction constitutes an electric current.
- An electric current between two points is due to potential difference between them.
- An electric circuit provides a closed path for flow of charges, that is, the electric current.
- Electric potential difference between two points in a circuit is equivalent to the work done in carrying a unit charge from one point to another.
- Current through a metallic conductor is directly proportional to the potential difference across its ends.

Closure:

5 min A short oral test would be taken to check proper assimilation of the topic discussed.

Learning Outcomes

Students would be able to:

- Explain the direction of flow of current
- Define current and its SI unit
- Define electric potential
- State Ohm's law and apply it in circuits

SELF-STUDY, HOME WORK, ASSIGNMENTS	Students would do the given questions in their H.W. notebooks: • Define electric current and its SI unit. • Calculate the number of electrons constituting one coulomb of charge. • State the function of Ammeter in a circuit. • How is an ammeter connected in a circuit? • How is a voltmeter connected in a circuit?
---	--