13 Electricity and Circuits

LESSON PLAN

SPECIFIC OBJECTIVES

The students will learn about

- history of electricity
- electric circuit
- electric current and its sources, i.e., electric cell
- dry cell, its structure and working; battery
- electric bulb and its working
- electric switch; breaking the circuit
- electric torch and its working
- electrical conductors and insulators and their applications

TEACHING AIDS

Pictures/charts/models/animation on a market place at night; a burning candle and an oil lamp; an electric generator, inverter, torch; a simple electric circuit; common electrical symbols; different types of electric cells; inside of a dry cell; combination of cells; parts of an electric bulb and electric torch; different types of electric switches; insulated electric wries, insulated electric tools; caution sign, etc.

LESSON PLAN

- The teacher will start the chapter with Gear Up discussing the questions with the students asked in the section.
- The teacher should teach the students about the drastic changes which we got through the invention of electricity under the heading 'history of electricity'.
- Teacher should define electric circuit, electric symbols, electric current and its sources.
- By demonstrating Activity 1, teacher should explain structure and working of a dry cell.
- Teacher should define a battery and correct way of making a combination of cells in a battery.
- With the help of Activity 2, teacher should explain the structure and working of an electric bulb.

- ✧ Teacher should explain how to connect a bulb to an electric cell by performing Activity 3.
- ✧ The teacher should discuss an electric switch and its construction with the help of Activity 4.
- ✧ Teacher should discuss the breaking of an electric circuit by explaining an open circuit and a closed circuit.
- ✧ The teacher should explain the structure and working of an electric torch.
- ✧ The teacher should also explain construction of a torch with the help of Activity 5.
- ✧ Teacher should explain electrical conductors and insulators and their applications.
- ✧ In order to test the electrical conductivity of the given materials, students should be asked to perform Activity 6.
- ✧ Teacher should discuss the cautions with electricity while using electrical gadgets.
- ✧ Students should also be asked to solve Check Points 1, 2 and 3.
- ✧ At last, the teacher will sum up the lesson by going through the points given under the head 'Wrap Up Now'.
- ✧ The teacher will help the students to solve the questions given in exercises under the head 'Practice Time' and will also discuss the topics given under the head 'Formative Tasks'.

BOOST UP

- ✧ The teacher should put few electrical appliances on the table. He/she should ask each student of the class to name the particular appliance out of all the appliances.
- ✧ The teacher may ask the students to make an electric circuit.
- ✧ Students should be asked to identify the electrical symbols drown by the teacher on the board.
- ✧ Students should be asked to tell one example each of primary and secondary cells. They should also be asked to identify open and closed circuits.
- ✧ Students should be asked to study primary and secondary cells as given in knowledge desk at page 167.

EXPECTED LEARNING OUTCOMES

The students understand and know the

- ✧ electricity and construction of electric circuit.
- ✧ electric current and its sources.
- ✧ electric cell, e.g., dry cell, its structure and working.
- ✧ formation of a battery.
- ✧ electric bulb and its working.
- ✧ a switch; a torch and its working.
- ✧ conductors, insulators and their applications.
- ✧ to test the conductivity of given materials.
- ✧ precautions taken when working with electricity.

EVALUATIVE QUESTIONS

The teacher may ask the following questions for evaluating the learning and understanding of students:

1. Define electric current and mention its SI unit.
2. Draw the symbol of open and closed keys.
3. What is meant by a dry cell? What are its constituents?
4. Define open and closed circuits.
5. Are cotton and rubber insulators or conductors? Why?
6. What precautions should be taken while handling electricity?
7. Which is the good conductor of electricity–pure water or impure water?