

## LESSON PLAN

### SPECIFIC OBJECTIVES

The students will learn about

- ✧ lightning
- ✧ behaviour of charges and their interactions
- ✧ process of lightning
- ✧ protection from lightning – lightning conductor
- ✧ earthquake, its causes and protection from earthquake

### TEACHING AIDS

Pictures/charts/models/animations on destruction caused by flood, tornado and earthquake; lightning, lightning conductor fitted on a building, charges in clouds, protection during lightning; structure of earth, major tectonic plates of the earth, movement of earth's plates, focus and epicenter of an earthquake, seismic zones of India, seismograph, protection during earthquake, etc.

### LESSON PLAN

- ✧ Teacher will start the chapter by going through the points given in 'Know these points before you start' section.
- ✧ Teacher will discuss different natural phenomena and the harms they cause.
- ✧ Now, teacher will discuss lightning and explain the behaviour of charges by demonstrating activities given in the chapter.
- ✧ Now, teacher will discuss electricity by explaining flow of charge.
- ✧ Teacher will explain the structure and working of an electroscope and how to test a charge with an electroscope.
- ✧ Teacher will also discuss characteristics of charges.
- ✧ Teacher will ask students to solve Check Point 1.
- ✧ Now, teacher will explain the process of lightning and the measures for protection from lightning.

- ✧ Teacher will also discuss the structure and function of a lightning conductor.
- ✧ Teacher will ask students to solve Check Point 2.
- ✧ Now, teacher will define earthquake and its causes by explaining the structure of the earth.
- ✧ Teacher will discuss seismic zones and earthquake-prone areas in India.
- ✧ Teacher will explain intensity of earthquake on Richter scale, its measuring instrument (seismograph) and measures taken to protect against earthquakes.
- ✧ Now, teacher will ask students to solve Check Point 3.
- ✧ Teacher will make students revise the new terms given under the head 'Know These Terms'.
- ✧ Finally, teacher will help students to solve the questions given in exercises under the head 'Practice Time' and 'Think Zone'.

### BOOST UP

- ✧ Teacher should demonstrate and explain activities given in the chapter.
- ✧ Teacher should discuss the information given under the head 'Something More'.
- ✧ Teacher should discuss the conversation of Annu and Mannu given in between the topics.
- ✧ Teacher should encourage students to study some more natural phenomena which cause harms to human life and property.
- ✧ Students should be made aware of the measures taken to protect against earthquakes and lightning.

### EXPECTED LEARNING OUTCOMES

The students know about

- ✧ natural phenomena.
- ✧ electric charge, behaviour of charges, flow of charge and electroscope.
- ✧ lightning, cause of lightning, protection against lightning – lightning conductor.
- ✧ earthquake and causes of earthquake.
- ✧ earthquake-prone areas.
- ✧ intensity of earthquakes.
- ✧ Richter scale and seismograph.
- ✧ measures taken to protect against earthquakes.

### EVALUATIVE QUESTIONS

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

1. Define natural phenomena.
2. What is lightning? Who discovered nature of lightning?
3. What is the use of an electroscope?
4. Write a short note on lightning conductor.
5. Explain the layers of the earth.
6. What is the cause of an earthquake?
7. Which scale and instrument is used to measure the intensity of an earthquake?