

**LESSON PLAN****SPECIFIC OBJECTIVES**

The students will learn about

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

**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 epicentre of an earthquake, seismic zones of India, seismograph, protection during earthquake, etc.

**LESSON PLAN**

- ✧ The teacher should start the chapter with Gear Up and ask students the questions given in this section.
- ✧ Now, the teacher should define natural phenomena and discuss lightning by explaining electric charge.
- ✧ Now, the teacher should discuss the behaviour of charges by demonstrating Activities 1 and 2.
- ✧ Now, the teacher should discuss electricity by explaining flow of charge.
- ✧ The teacher should explain the structure and working of an electroscope and how to test a charge with an electroscope.
- ✧ Now, the teacher should explain the process of lightning and the measures taken to protect from lightning.
- ✧ The teacher should also discuss the structure and function of a lightning conductor.
- ✧ Now, the teacher should define earthquakes and their causes by explaining the structure of the earth.
- ✧ The teacher should discuss seismic zones and earthquake-prone areas in India.

- ✧ The teacher should explain intensity of earthquake, its measurement on Richter scale, seismograph and measures taken to protect against earthquakes.
- ✧ Students should be asked to solve Check Points 1 and 2.
- ✧ 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 all 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 ask to study some more natural phenomena which cause harms to human life and property.
- ✧ The teacher should assign Activity 3 as Group activity in the class.
- ✧ Students should be asked to tell the measures taken to protect against earthquakes and lightning other than those given in book.

### **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 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?