

## LESSON PLAN

### SPECIFIC OBJECTIVES

- The students will learn about
- ✧ friction and its causes
  - ✧ measuring friction; factors affecting friction
  - ✧ reducing friction
  - ✧ importance of friction
  - ✧ friction in fluids

### TEACHING AIDS

Pictures/charts/models/animations on spring balance; ball bearing, roller bearing, worn out tyres, etc.

### LESSON PLAN

- ✧ Teacher will start the chapter by going through the points given in 'Know these points before you start' section.
- ✧ Now, teacher will define friction and discuss its causes.
- ✧ Teacher will explain how to measure friction by demonstrating activity given in the chapter.
- ✧ Now, teacher will ask students to solve Check Point 1.
- ✧ Teacher will discuss the factors affecting friction by demonstrating activities given in the chapter.
- ✧ Teacher will discuss the ways for reducing the friction.
- ✧ Teacher will ask students to solve Check Point 2.
- ✧ Now, teacher will discuss the significance of friction by giving examples and demonstrating activity given in the chapter.
- ✧ Teacher will discuss friction in fluids by demonstrating activities given in the chapter.
- ✧ 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 find out some examples of different kinds of friction.
- ✧ Students should be asked to tell some events when increasing friction become a necessity.
- ✧ Teacher should explain the applications of friction in fluids.

### EXPECTED LEARNING OUTCOMES

The students know about

- ✧ friction, its causes and applications.
- ✧ factors which affect the friction.
- ✧ importance of friction.
- ✧ ways for increasing and decreasing friction.
- ✧ friction in fluids and ways to overcome it.

### EVALUATIVE QUESTIONS

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

1. Define friction and mention its causes.
2. How can we measure the friction?
3. Mention the factors which affect the friction.
4. How can we increase the friction?
5. What is meant by lubrication?
6. Why do we use ball-bearing in wheels and talcum powder on a carom board?
7. How is streamlined shape of fish and birds helpful to them?