

LESSON PLAN**SPECIFIC OBJECTIVES**

The students will learn about

- ✧ objects in motion; fast and slow motions
- ✧ speed and its unit; average speed
- ✧ uniform and nonuniform motions
- ✧ determining speed
- ✧ measurement of time and unit of time
- ✧ simple pendulum and its time period
- ✧ graphical representation of speed

TEACHING AIDS

Pictures/charts/models/animations on earlier time-measuring devices; different types of clocks—wall clock, table clock, digital clock; mechanical and digital stopwatch; simple pendulum, simple pendulum in oscillatory motion; speedometer, odometer; distance-time graph of speed.

LESSON PLAN

- ✧ The teacher should start the chapter with ‘Gear Up’ section discussing the questions given in the section.
- ✧ Now, the teacher should discuss when an object is said to be in the state of motion.
- ✧ The teacher should discuss the differences between slow and fast motions.
- ✧ The teacher should teach the students about the physical quantity speed, its SI unit and how it is determined and measured.
- ✧ Teacher should define average speed by explaining uniform and nonuniform motions.
- ✧ Now, the teacher should instruct the students to solve the numerical problems for clear understanding of the motion, speed and average speed.
- ✧ Now, the teacher should define the physical quantity time, need to measure it, earlier time-measuring and modern time-measuring devices, its SI unit with multiples and submultiples of units.

- ❖ The teacher should define simple pendulum and its construction.
- ❖ The teacher should define oscillatory motion with the help of a simple pendulum.
- ❖ Now, the teacher should define the measuring of time period of a simple pendulum by performing Activity 2.
- ❖ The teacher should discuss the facts related to the time period of a simple pendulum and verify them by performing Activities 3 and 4.
- ❖ Teacher should define the graphical representation of data by explaining the term graph, its types and elements.
- ❖ Now, teacher should discuss the graphical representation of speed by drawing the distance-time graph.
- ❖ Teacher should discuss the information obtained from a distance-time graph for nonuniform motion and zero-speed object.
- ❖ 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 encourage the students to perform Activity 1 while teaching the earlier time-measuring devices.
- ❖ Students should be encouraged for solving more numerical problems.
- ❖ Teacher may discuss a little more about the Indian Standard Time (IST) and National Physical Laboratory (NPL), New Delhi to aid to the knowledge of the students.

EXPECTED LEARNING OUTCOMES

The students know about

- ❖ concept of motion; slow and fast motions.
- ❖ concept of speed, its calculation and unit.
- ❖ concept of average speed; uniform and nonuniform motions.
- ❖ concept of time, ancient and modern time-measuring devices, SI unit of time, and its multiples and submultiples.
- ❖ simple pendulum, type of motion it exhibits, calculation of its time period and related facts to it.
- ❖ measuring the speed.
- ❖ graph and distance-time graph of speed.

EVALUATIVE QUESTIONS

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

1. What is meant by motion?
2. Mention the differences between slow and fast motions.
3. Write the formula to calculate the speed.
4. A man is driving his car at a speed of 60 km/h. How far will he be travelling in 6 hours?
5. Establish the relation between hour and second.
6. Define time period of a simple pendulum.
7. Which instrument is used to measure the speed of motor vehicles?