



LESSON PLAN

SPECIFIC OBJECTIVES

The students will be able to learn about

- ▶ force, its kinds and changes it can bring in an object
- ▶ work and energy, sources and forms of energy
- ▶ energy conversions and energy crisis
- ▶ simple machines

TEACHING AIDS

- ▶ Pictures/animation on muscular force, gravitational force, frictional force (as given in chapter); Sources of energy (as given in chapter), solar cooker, solar heater, solar cell, windmill, or dam, a hydropower station; Pictures/samples/models of some simple machines (those given in chapter).

TEACHING STRATEGY

- ▶ Start the chapter with Warm Up section by giving a brief idea of force, energy and work.
- ▶ Describe that for pulling or pushing an object, we apply force on it.
- ▶ Ask the students to fill in the blanks given with pictures and describe what more a force can do, i.e., make an object move, stop a moving object, change the direction of a moving object.
- ▶ With the help of teaching aids and Activities 2 and 3, describe muscular force, gravitational force and force of friction.
- ▶ Now by performing Activity 4, define the concept of work that when we apply a force on an object, we do the work.
- ▶ Discuss the concept of energy and explain that energy is the ability to do work.
- ▶ Explain that sun, wind, water, etc., are the sources of energy.
- ▶ Discuss different types of energy and with the help of teaching aids, explain solar energy, wind energy and hydroenergy.
- ▶ Explain that one form of energy can be changed into another form. With the help of teaching aids, teacher will discuss different examples of energy conversions (as given in chapter).
- ▶ Explain the term 'machine' that it is an object which makes our work easier. With the help of Activity 5, explain how machines make our work easier.
- ▶ With the help of teaching aids, explain the types of simple machines and their uses in everyday life.

- ▶ Sum up the chapter by going through the points given under the head 'Remember'.
- ▶ Finally, the teacher will help the students do all the exercises.

BOOST UP

- ▶ Explain the effects of force by performing some activities.
- ▶ While teaching the effect of force that changes the shape of an object, show the making of different shapes using coloured clay.
- ▶ To show the force of friction acting between the ball and the ground, demonstrate a ball rolling on the ground that stops moving after some time.
- ▶ While teaching simple machines, demonstrate how working without machine is difficult but the same work becomes easier when done with the help of some machine (as discussed in the chapter).
- ▶ Show the working of some simple machines.
- ▶ Show the picture/documentary film/video clip on a dam and if possible, arrange a tour to a dam.

EXPECTED LEARNING OUTCOMES

The students are able to learn about

- ▶ force, its kinds and changes it can bring in an object.
- ▶ work and energy.
- ▶ different sources and forms of energy.
- ▶ energy conversions.
- ▶ simple machines.

EVALUATIVE QUESTIONS

The teachers may ask the following questions to evaluate the students.

1. How can we make an object move?
2. What is muscular force?
3. What is gravitational force?
4. How does friction stop a moving ball?
5. What is work?
6. What is energy?
7. In which form do we get energy from the sun?
8. In photosynthesis, how does one form of energy change into another form?
9. What are simple machines?
10. How do machines make our work easier?