

SPECIFIC OBJECTIVES

The students learn about

- ❖ concept of force and the changes a force can bring in an object
- ❖ types of force
- ❖ energy and its various forms
- ❖ machines and their types
- ❖ simple machines and their types
- ❖ lever, pulley, inclined plane, wheel and axle, wedge and screw

TEACHING AIDS

Pictures/animation on a child/person pushing, pulling an object; making an object move, stopping a moving object, changing the direction of a moving object, lowering the speed, raising the speed of an object, changing the shape and size of an object; muscular, gravitational, frictional, mechanical, magnetic, electrostatic and buoyant forces; pulley, inclined plane, wheel and axle, wedge and screw; levers of first, second and third class (as given in chapter).

LESSON PLAN

- ❖ The teacher will start the chapter by asking some simple questions on machines based on previous knowledge of students.
- ❖ With the help of teaching aids, teacher will explain the concept of force that it is a pull or push that brings a change in an object, and will discuss the effects of force on an object.
- ❖ With the help of teaching aids, teacher will explain different types of forces and their effects.
- ❖ Teacher will ask students to solve 'Checkpoint 1'.
- ❖ Now, teacher will define energy, its different forms and their uses in everyday life.
- ❖ Teacher will ask students to solve 'Checkpoint 2'.
- ❖ Now, teacher will discuss how machines make our work easier and explain the two types of machines by showing their pictures.

- ❖ With the help of teaching aids and suitable examples, teacher will explain types of simple machines.
 - Teacher will define lever, its fulcrum, load and effort, and explain its uses and types, i.e., levers of first, second and third class.
 - Teacher will describe pulley and its uses.
 - With suitable examples, teacher will explain an inclined plane and its uses.
 - Teacher will explain how wheel and axle reduce the work load.
 - Teacher will define a wedge, its features and uses.
 - Teacher will explain the formation of screw that it is like wrapping of an inclined plane around the rod.
- ❖ Now teacher will ask students to solve 'Checkpoint 3'.
- ❖ At last, teacher will make students revise the new terms given in 'Science Vocabulary' and sum up the lesson by going through the points given in 'Wrapping it up'.
- ❖ Now, teacher will help students to solve the questions given in 'Exercises'.

BOOST UP

- ❖ Teacher should encourage students to carry out activities given in the chapter.
- ❖ Teacher should discuss the conversation of Annu and Mannu given in bubbles in between the topics.
- ❖ Teacher should help students to find the answers of questions given in 'Think Zone' and encourage to do activities or projects given in 'Beyond the Text'.
- ❖ Teacher should also discuss the facts given in 'Interesting Information' section.
- ❖ Teacher should demonstrate the working of a pulley.
- ❖ Teacher should display some of the simple machines and their working.
- ❖ Students should be encouraged to explore the places or fields where these simple machines are used.

EXPECTED LEARNING OUTCOMES

The students

- ❖ understand the concept of force and its possible effects.
- ❖ know the types of force.
- ❖ understand concept of energy and its different forms.
- ❖ know the importance of machines.
- ❖ know about simple machine, their types and applications in various fields.

EVALUATIVE QUESTIONS

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

1. What possible changes can a force bring in an object?
2. Which force is applied with the help of muscles?
3. Name the force applied by a machine.
4. Which force makes things float in water?
5. How do machines make the work easier?
6. What is a complex machine?
7. What is a lever?
8. What are fulcrum, load and effort of a lever?
9. In which class of lever is load between fulcrum and effort?
10. What is a pulley?
11. What is a wedge?
12. What is a screw?