

LESSON- 11

SIMPLE MACHINES

1. Tick (✓) the correct answer.

a. A fishing rod is an example of

Ans. i. lever

b. The fulcrum is between the load and the effort in levers of

Ans. i. class 1

c. Part of the lever that is fixed is called the

Ans. iii. Fulcrum

d. An example of an inclined plane is

Ans. i. ramp

e. Which of them is not a simple machine?

Ans. i. Axle

2. Write True or False.

a. A bottle opener is class 1 lever. **False**

b. Simple machines use a single force. **True**

c. In a gradual inclined plane, the distance to be covered by an object is greater. **True**

d. A blade is an example of a wedge. **True**

e. A screw is used on top of a flag pole to raise the flag. **False**

3. Fill in the blanks.

- a. An **inclined plane** is a sloping surface.
- b. In class **3** levers, the effort is between the load and fulcrum.
- c. In a lever, the **effort** is the part of the lever where force is applied.
- d. In a **pulley**, the effort is applied in one direction and the load moves in another direction.
- e. A **screw** is an inclined plane wrapped around a spiral.

4. Answer the following questions briefly.

- a. What is a lever? Explain its parts.

Ans. A lever is a rigid rod that can move freely around a fixed point. It consists of the following three parts:

Fulcrum (F) – It is the fixed point around which the lever moves.

Load (L) – It is the object on which work is to be performed or that has to be moved.

Effort (E) – It is the force that has to be applied on the rod in order to perform the task.

- b. Name the six types of simple machines. Give examples of each.

Ans. Six types of simple machines with their examples are:

1. Lever – See-Saw
2. Pulley - On the top of flag pole
3. Screw – Lids of bottles

4. Inclined plane – Hospital ramp

5. Wedge - Knife

6. Wheel and Axle - Bicycle wheel

c. How is a fixed pulley different from a movable pulley?

Ans. Fixed pulley is fixed on a support with a rope passing over it while a movable pulley has weight supported by more than one pulley.

d. What is a wedge?

Ans. Two inclined planes that meet at a sharp edge, in the shape of a 'V' is called a wedge.

e. What kind of simple machine is a screw driver? Explain.

Ans. A screw driver makes use of a simple machine known as the wheel and axle. A wheel and axle is a simple machine made of two circular or cylindrical objects fastened together that rotates about a common axis.

f. How are simple machines different from complex machines?

Ans. Simple machines use a single force to overcome a single load while complex machines consist of two or more simple machines working together.

g. In what ways do simple machines make our work easier?

Ans. Simple machines make our work easier :-

1. By increasing the amount of force applied.

2. By changing the direction of force applied.

3. By increasing the speed of doing work.