**11. SIMPLE MACHINES**

**1. What is a simple machine? List the various types of simple machines.**

Ans A machine that consists of few or no moving parts is called a simple machine. A bottle opener, a knife, a ramp and a wheel are some examples of simple machines. The various types of simple machines are the lever, the inclined plane, the pulley, the wheel-and-axle, the screw and the wedge.

2. Name the three kinds of levers. Explain with diagrams how they are different from each other.

**Ans** Levers are grouped into three classes:

**i.** Class 1 lever or First-class lever



**ii.** Class 2 lever or Second-class lever



**iii.** Class 3 lever or Third-class lever



In class 1 levers, the fixed point or the fulcrum lies between the load and the effort.

In class 2 levers, the load lies between the fulcrum and the effort.

In class 3 levers, the effort lies between the load and the fulcrum.

3. What is a pulley? How does it make our work easy?

Ans A pulley consists of a wheel that is free to rotate about an axle passing through its centre.

* The rim of the wheel has raised edges. A rope or a string passes through the rim.
* A pulley is used to lift or move heavy objects. In a pulley, the axle is fixed on a rigid support such as a wall.
* One end of the rope passing over the pulley is tied to the load. The effort is applied at the other end of the rope.
* A pulley makes our job easy by changing the direction of force applied.

4. What is a screw? Describe its use.

Ans 1.A screw is a long nail with a spiral metal thread along its length.

2.We usually use screws to join two pieces of wood together.

3.A screw holds the pieces together more firmly than a nail does.

4.The head of the screw has a groove where a screwdriver can be fixed.

5.With every turn of the screwdriver, the screw moves easily into the wood.

5. What is a wedge? How does it work as a simple machine?

Ans 1.A wedge is a piece of wood or metal shaped like a triangle.

2.A wedge can be made by putting two

inclined planes together, back to back.

3.It has a thick edge and a thin edge.

4.A wedge acts as a simple machine because the thin edge is used to cut, slice or push things apart.