

Chapter - 13

Motion and Time

- **Motion:** The action or process of moving or being moved.
- The distance moved by an object in a unit time is called its speed.
- Speed of objects help us to decide which one is moving faster than the other.
- The speed of an object is the distance travelled divided by the time taken to cover that distance. Its basic unit is metre per second (m/s).
- Periodic events are used for the measurement of time. Periodic motion of a pendulum has been used to make clocks and watches.
- Motion of objects can be presented in pictorial form by their distance-time graphs.
- The distance-time graph for the motion of an object moving with a constant speed is a straight line.
- **Types of Motion:**
 - (i) **Uniform motion:** An object moving along a straight line with a constant speed is said to be in uniform motion. The average speed is the same as the actual speed.
 - (ii) **Non-Uniform motion:** If the speed of an object moving along a straight line keeps changing, its motion is said to be non-uniform.
- **Speed:** It is the distance covered by an object in a unit time. Basic unit of speed is m/s.
$$\text{Speed} = \frac{\text{Total distance covered}}{\text{Total time taken}}$$
- **Distance-Time Graph:** Motion of objects can be presented in pictorial form by their distance-time graphs. The distance-time graph for the motion of an object moving with a constant speed is a straight line.