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STUDY MATERIAL SCIENCE CLASS-VII

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▸ 13. MOTION & TIME

Speed :

The distance travelled by an object per unit time (either in one hour, in one minute or in one second) is known as speed of the object. A slow moving object is said to have a low speed and a fast moving object is said to have high speed. So, if we know the distance covered by two buses in one hour, then we can answer which one is slower.

The formula for the speed of an object is given by :

Speed = (total distance covered / total time taken)

e.g. If a car travels a distance of 100 km in 2 h, then the speed of this car is given by

$$\text{Speed} = 100 \text{ km} / 2 \text{ h} = 50 \text{ km/h}$$

Non-Uniform and Uniform Motions :

In everyday life, we find objects moving with a constant speed over long distances or for long durations of time.

If the speed of an object moving along a straight line keeps changing, its motion is said to be **non-uniform motion**.

On the other hand, an object moving along a straight line with a constant speed is said to be in **uniform motion**. In this case, the average speed is the same as the actual speed.

Units of Speed :

The unit of speed depends upon the unit of distance and the unit of time used.

- The **metre** is the standard (or basic) unit of distance and second is the standard unit of time. So, the standard unit of speed is metre per second (m/s).
- The large values of speed are expressed in kilometre per hour (km/h) and in this case, the distance travelled is measured in terms of kilometre and time taken is measured in an hour.
- The small values of speed are expressed in centimetre per second (cm/s) and in this case, the distance travelled is measured in terms of centimetre and time taken is measured in second.

NOTE : If we have to compare the speeds of a number of objects, then we must express the speeds of all those objects in the same unit.

► **ASSIGNMENT :**

1. What is speed?
2. Write the formula of speed.
3. A train takes 4 hours to cover 240km. Calculate the speed of the train.
4. Define Uniform & Non uniform motion.
5. What is the basic unit of time?