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MOTION

CHAPTER NO.2

SUB: PHYSICS

MOTION

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LEARNING OBJECTIVE

Students will be able to

- Define uniform and non-uniform motion
- Define concept of speed average speed

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Scalar and Vector Quantities

A physical quantity which has only magnitude but no specific direction is called a **scalar** quantity.

Examples: length, distance, area, mass, time, energy, etc.

A physical quantity which has both magnitude and direction is called a **vector** quantity.

Examples: displacement, velocity, acceleration, force, weight, etc.

SPEED

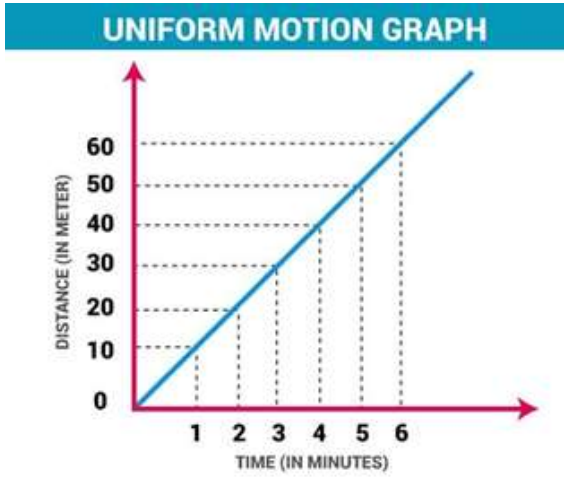
- The distance travelled by a body per unit time is called the speed of the body.
- Speed is a scalar quantity.
- The SI unit of speed is m/s.
- Speed = **Distance travelled/Time taken.**

Uniform Motion: A body is said to have a uniform motion if it covers equal distances in equal intervals of time.

This uniform motion is defined as the motion of an object in which the object travels in a straight line and its velocity remains constant along that line as it covers equal distances in equal intervals of time, irrespective of the duration of the time.

Example of Uniform Motion:

- If the speed of a car is 10 m/s, it means that the car covers 10 meters in one second. The speed is constant in every second.
- Movement of blades of a ceiling fan.



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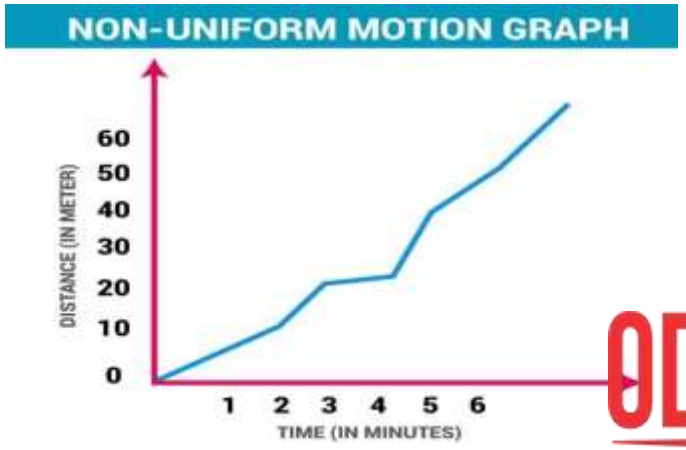
Non-uniform Motion: A body is said to have a non-uniform motion if it covers unequal distances in equal intervals of time.

This non uniform of motion is defined as the motion of an object in which the object travels with varied speed and it does not cover same distance in equal time intervals, irrespective of the time interval duration.

Example of Non Uniform Motion:

- If a car covers 10 meters in first two seconds, and 15 meters in next two seconds.



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Average Speed-

- It is defined as the total path length travelled divided by the total time interval during which the motion has taken place.

In general, average speed formula is:

- Average Speed = Total Distance/Total Time

HOME ASSESSMENT

1.Distinguish between uniform and non uniform motions, giving an example of each.

2.How do you determine the average speed of a body in non uniform motion ?

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