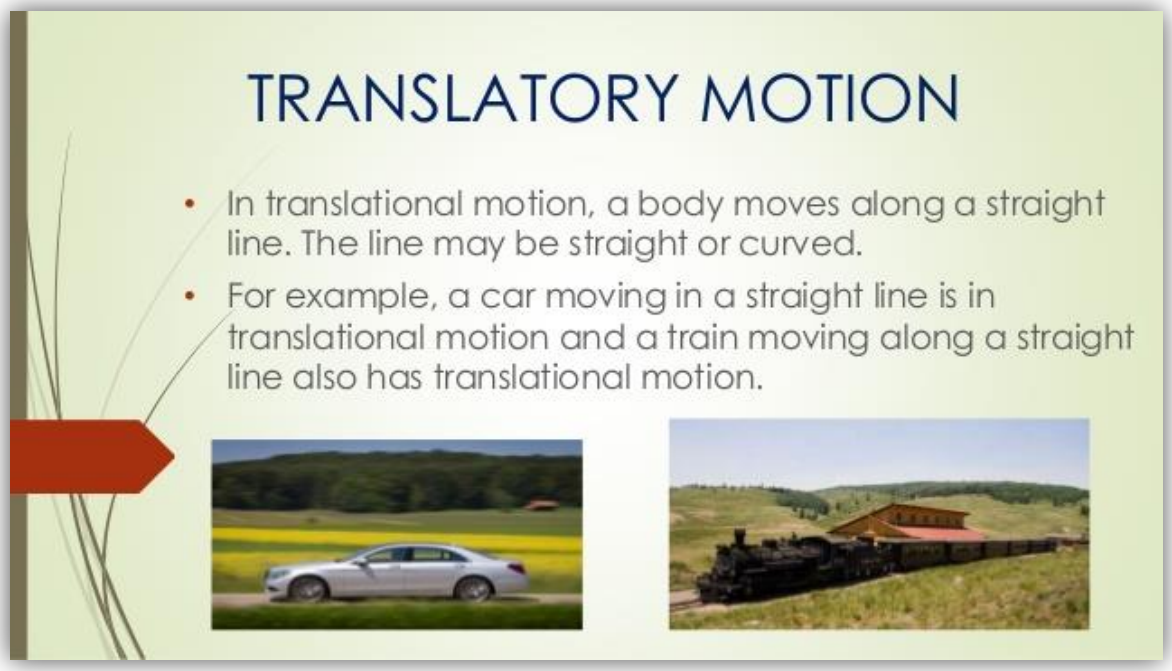
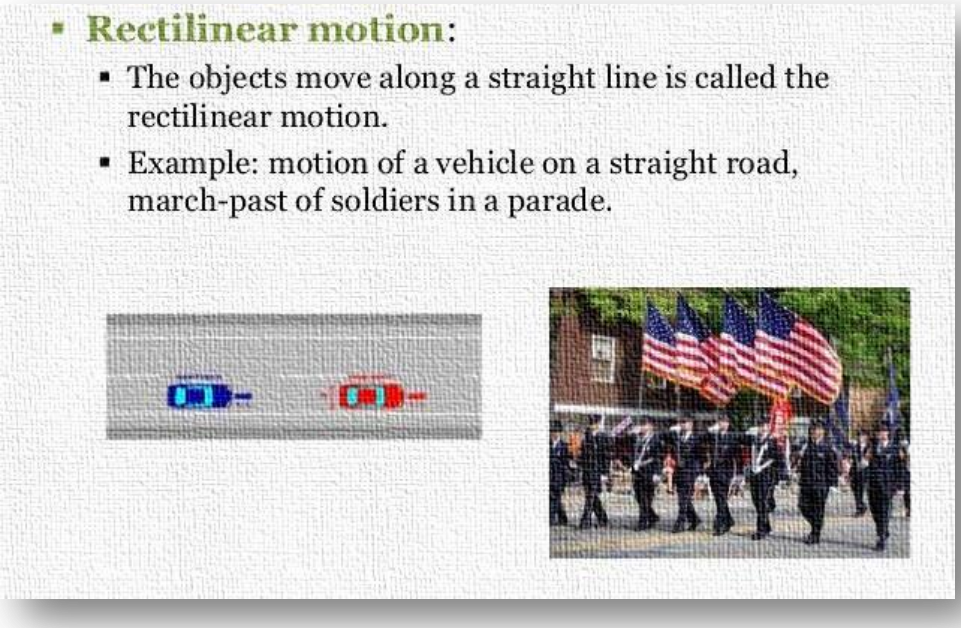
(1) Translatory Motion:



(a) Rectilinear Motion:

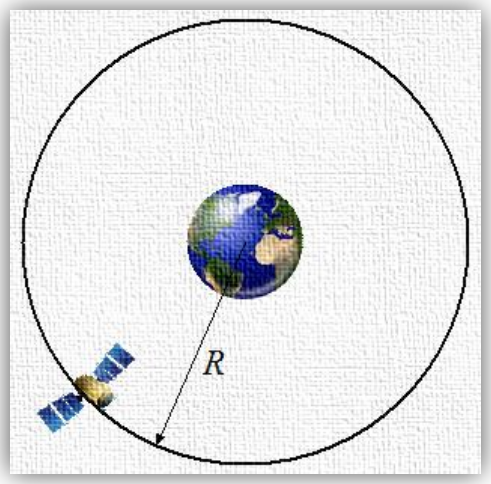


(b) Curvilinear Motion:

The motion of an object moving in a curved path is called *curvilinear motion*.

(c) Circular Motion:

Circular motion is a movement of an object along the circumference of a circle or rotation along a circular path.



(2) Rotatory Motion:

Figure: 1 Definition

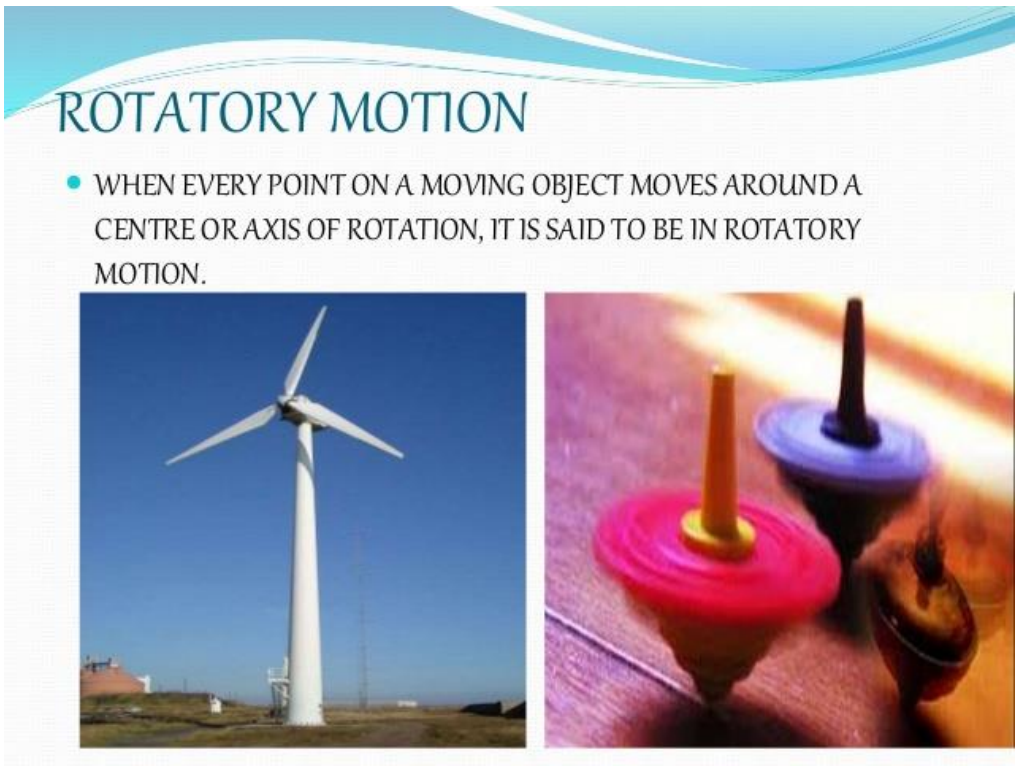
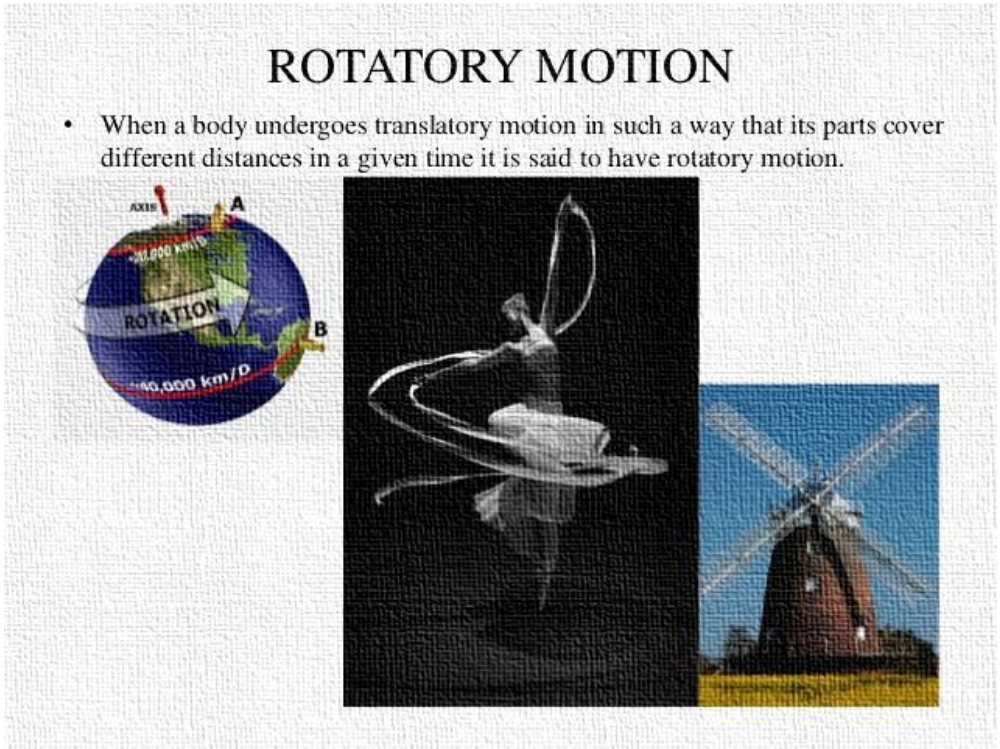
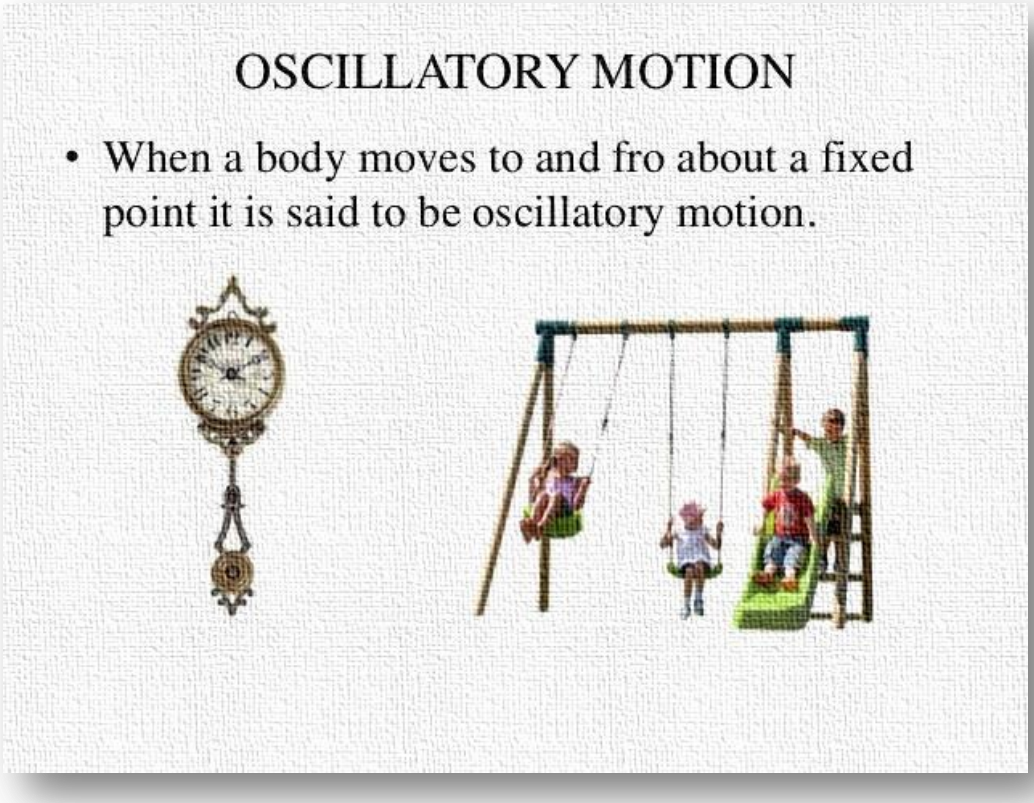
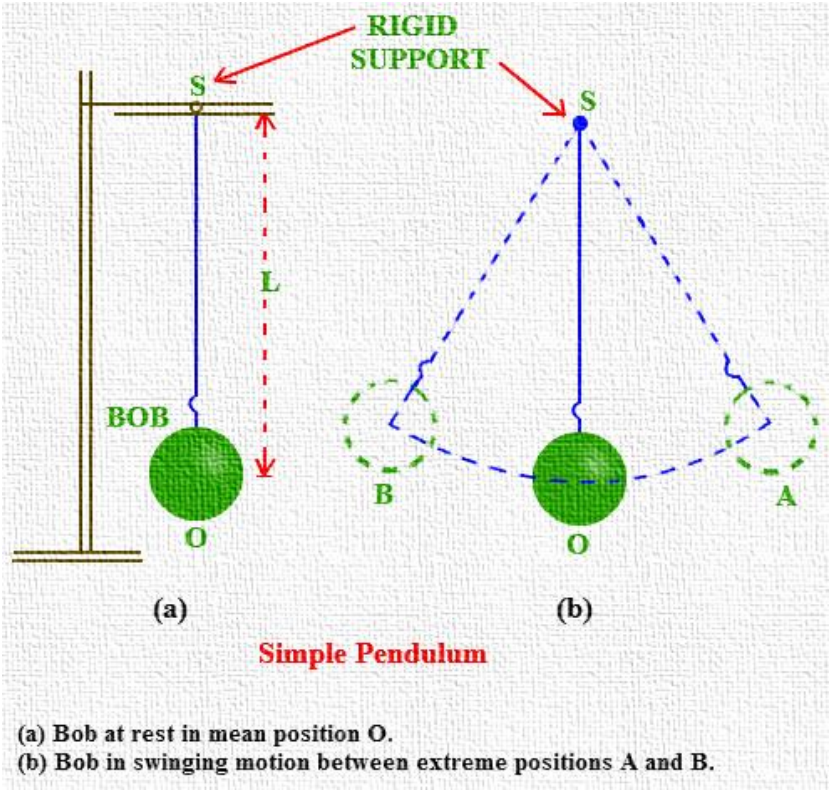


Figure: 2 Definition

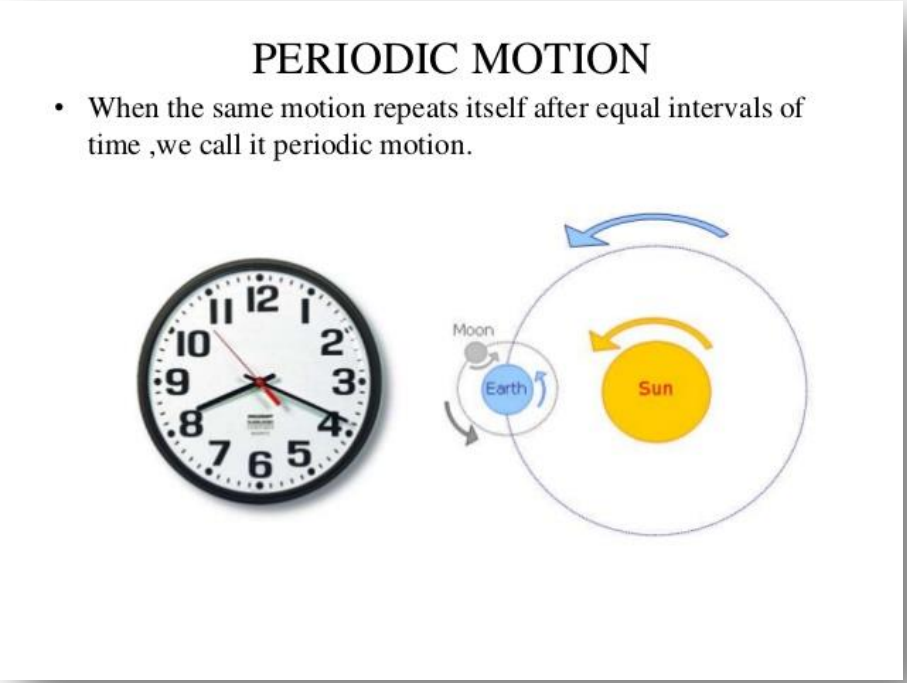


(3) Oscillatory Motion:-





(4) Periodic Motion:-



(5) Uniform Motion:-

Uniform motion is the kind of motion in which a body covers equal distances in equal intervals of time.

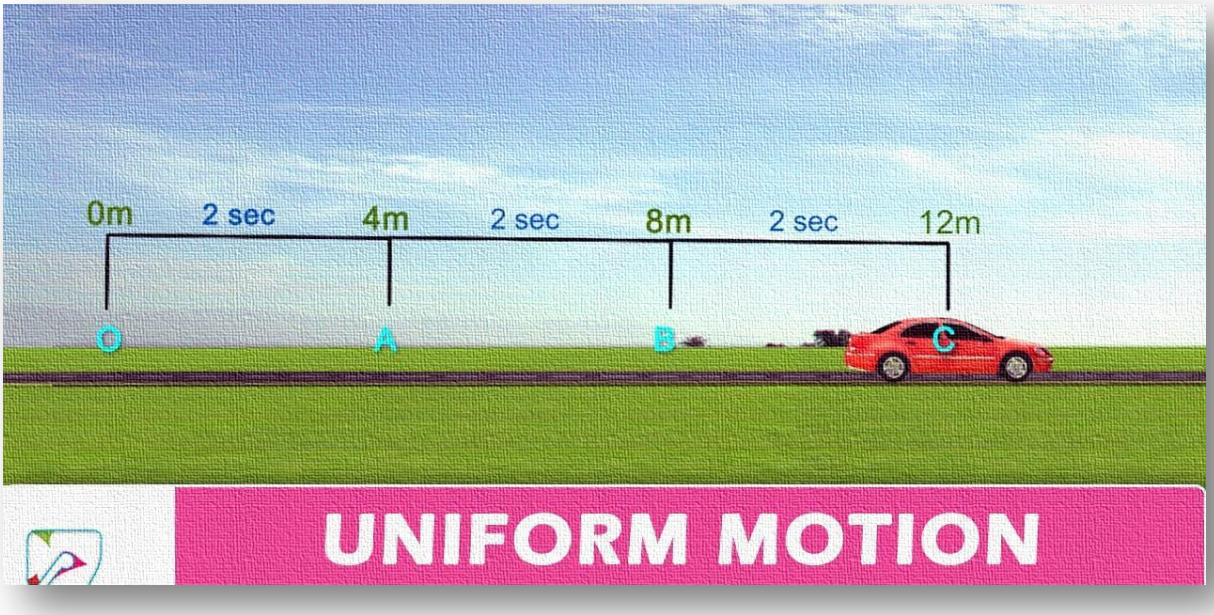
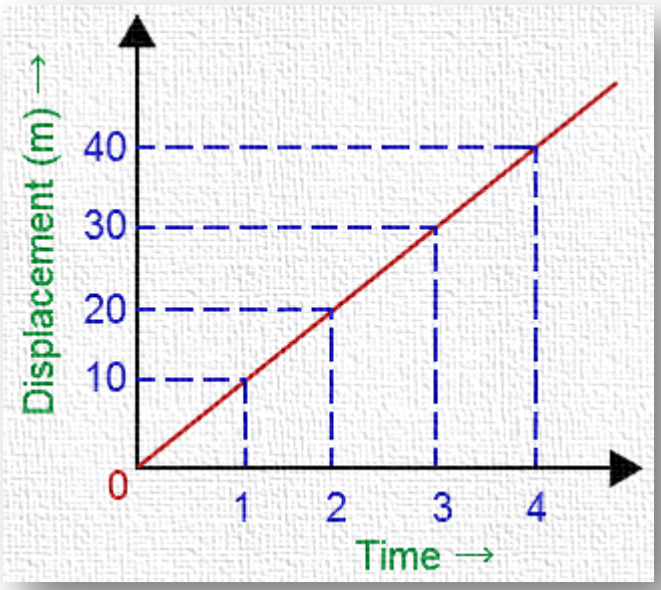


Figure: 1 – Graph of Uniform Motion is a straight line.



(6) Non Uniform Motion:-

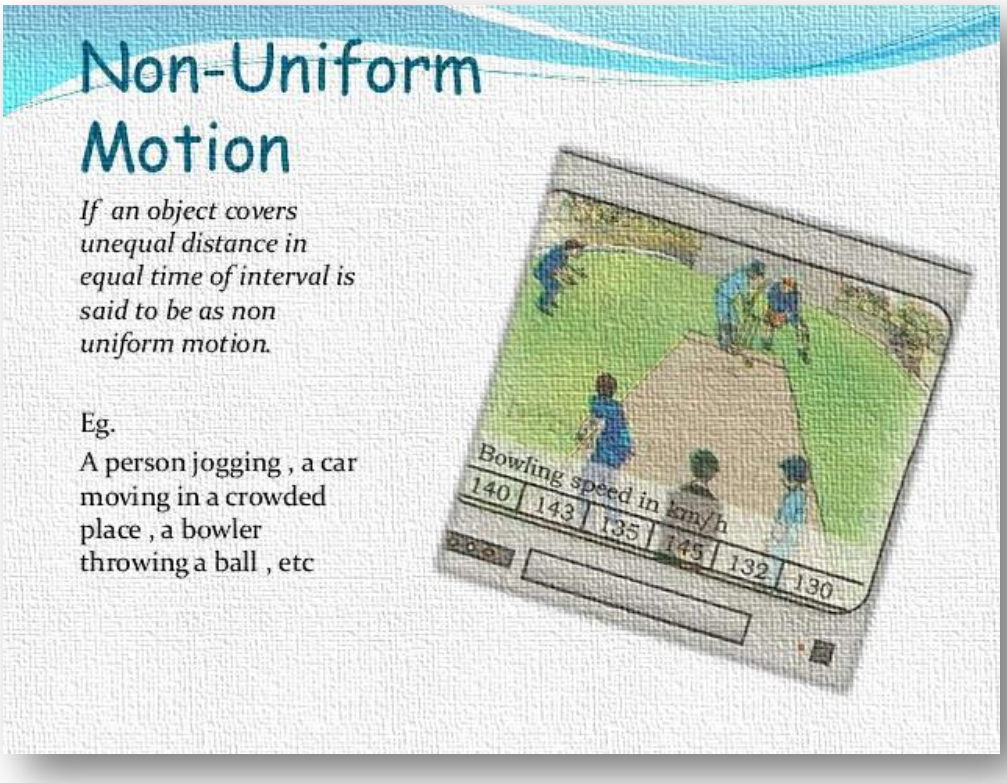
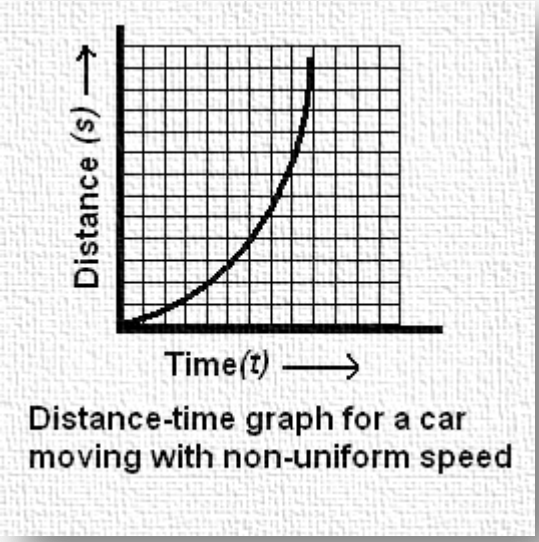


Figure: 1 – Graph of Non-Uniform Motion is not a straight line.

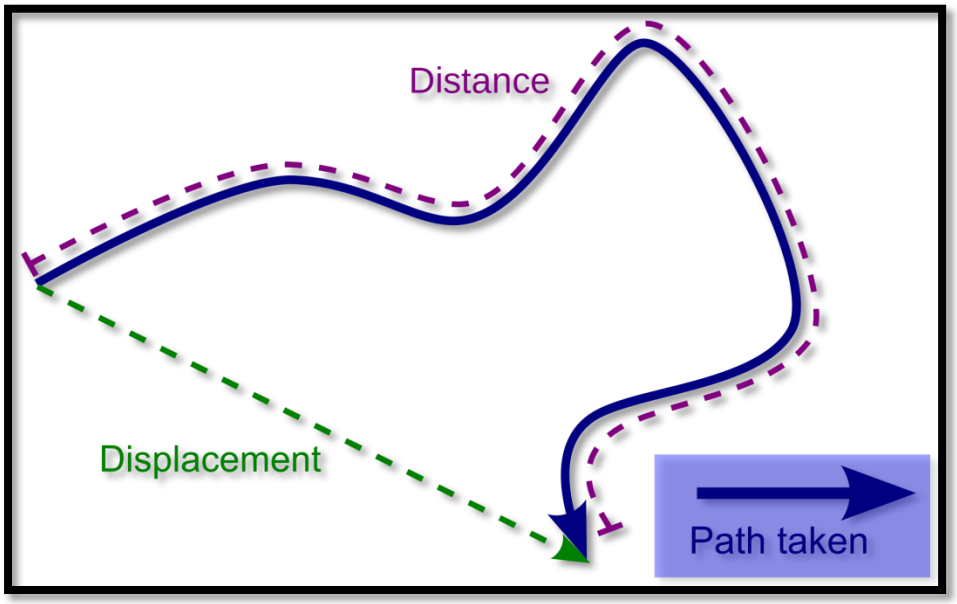


Distance-time graph for a car moving with non-uniform speed

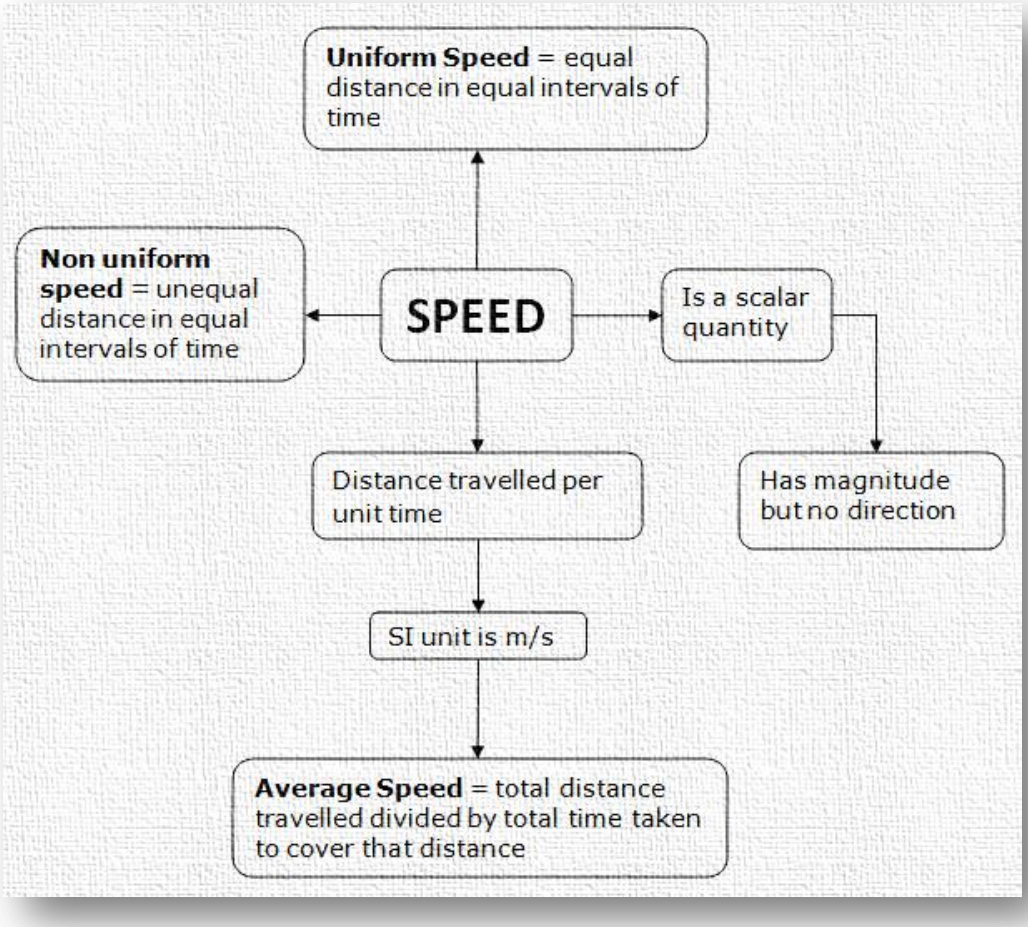
(7) Distance and Displacement:-

Distance	Displacement
Distance refers to **the total length of travel irrespective of the direction of the motion.**	Displacement refers to **the distance moved in a particular direction.** It is the object's overall change in position.
It is a **scalar quantity.**	It is a **vector quantity.**
SI unit: metre (m)	SI unit: metre (m)
Other common units: kilometre (km), centimetre (cm)	Other common units: kilometre (km), centimetre (cm)

Figure: 1



(8) Speed and Velocity:-

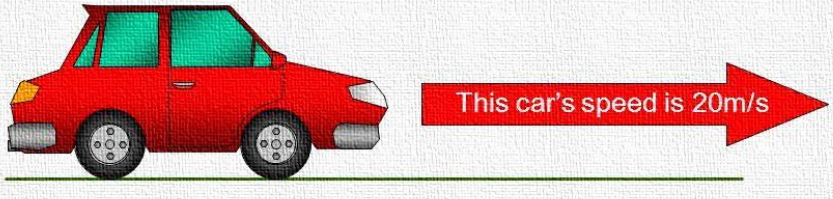


Velocity

- *Velocity* refers to both the speed and direction of motion of an object (a vector quantity).
- Two objects travelling with the same speed but in different directions have different velocities
- Motion at *constant velocity* means that both the speed and direction of an object do not change.
- In a car, we can *change the velocity three ways*: gas pedal to speed up, brake to slow down or steering wheel to change direction

Speed v Velocity

Simply, speed is the distance travelled per second …



Velocity is the distance travelled per second in a specific direction …..

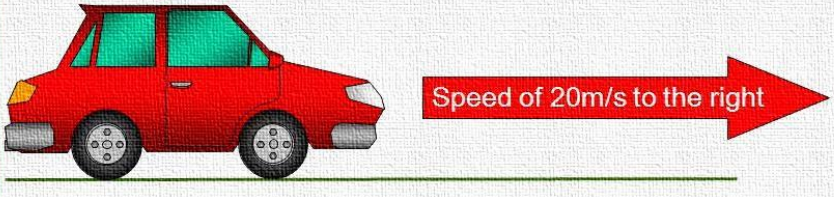
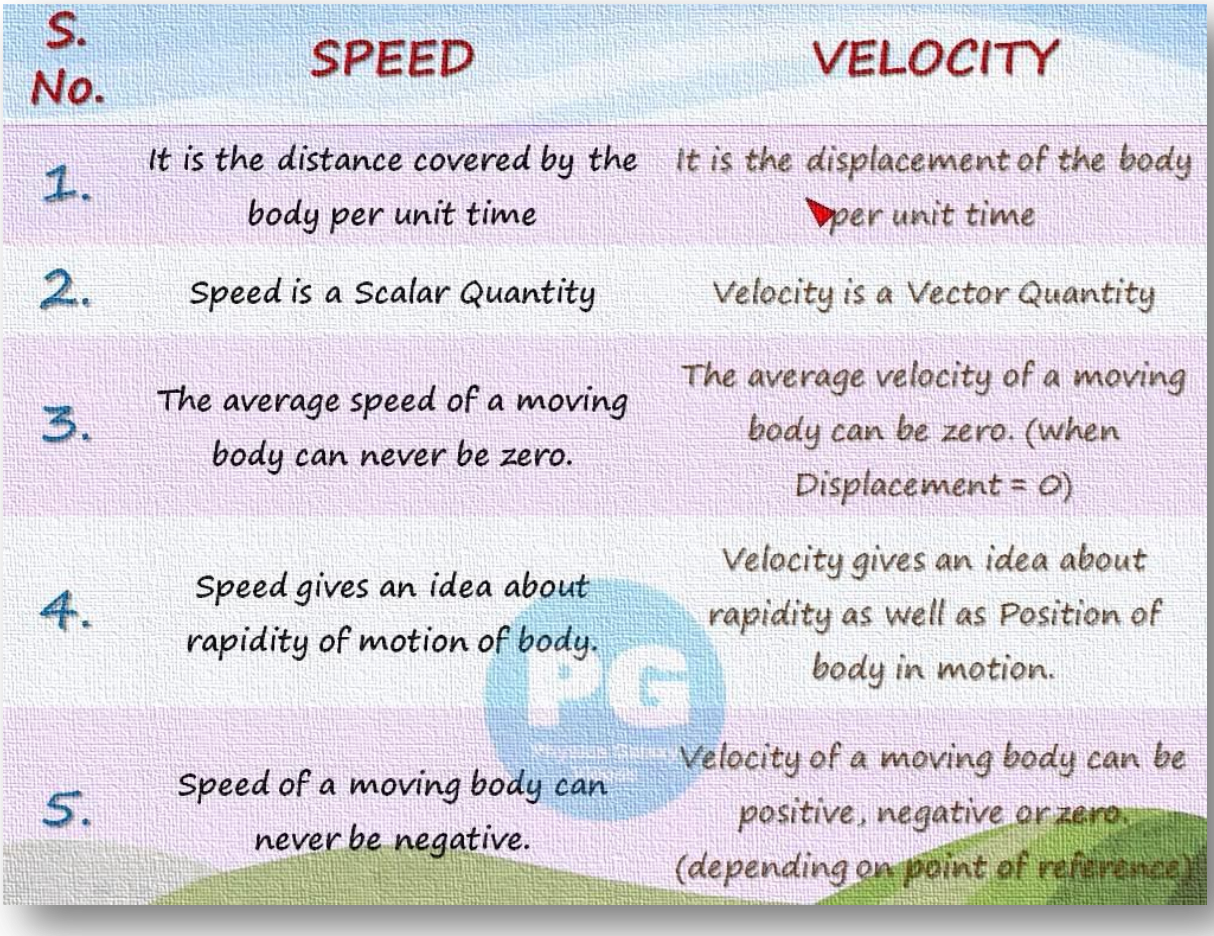
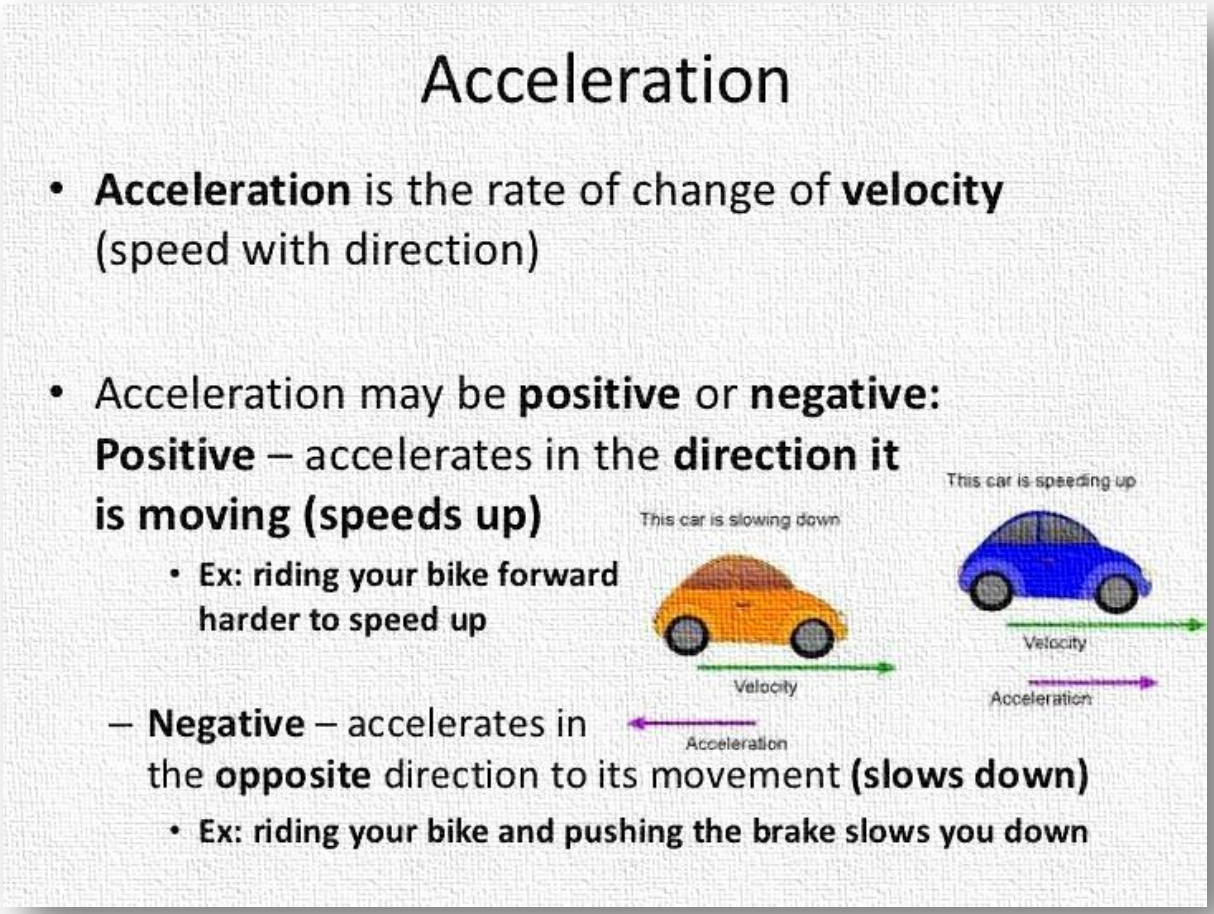


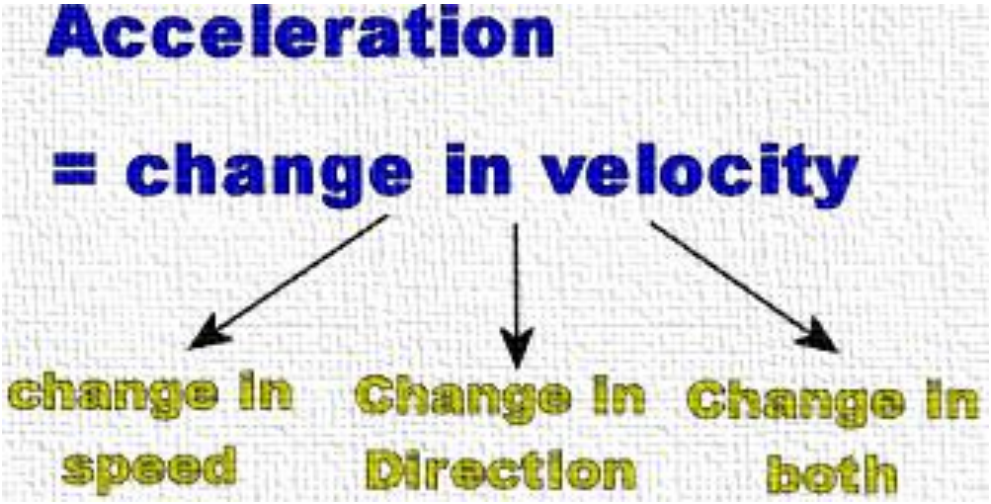
Figure: Difference between speed and velocity.



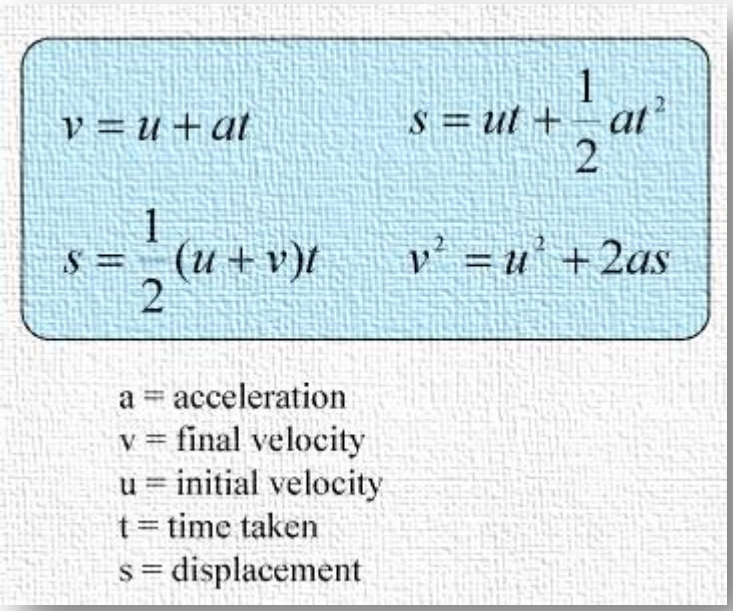
S. No.	SPEED	VELOCITY
1.	It is the distance covered by the body per unit time	It is the displacement of the body per unit time
2.	Speed is a Scalar Quantity	Velocity is a Vector Quantity
3.	The average speed of a moving body can never be zero.	The average velocity of a moving body can be zero. (when Displacement = 0)
4.	Speed gives an idea about rapidity of motion of body.	Velocity gives an idea about rapidity as well as Position of body in motion.
5.	Speed of a moving body can never be negative.	Velocity of a moving body can be positive, negative or zero. (depending on point of reference)

(9) Acceleration:





(10) Equations of Motion:-



NOTE: - ***These equations are applicable only if the body is getting displaced in a straight path or horizontally.***