Types of Motion

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Rectilinear motion, Circular motion, Periodic motion and Rotational motion.

Rectilinear Motion: Motion in a straight line is called Rectilinear motion, e.g.

(1) When a bullet is fired from a gun, the bullet moves in a straight line path. So, the movement of a bullet fired from a gun is an example of Rectilinear motion.

(2) The motion of a cyclist running on a straight road is Rectilinear motion.

(3) The march past of soldiers in a parade is Rectilinear motion and

(4) The motion of a sprinter (short distance runner) running on a straight track is also called Rectilinear motion.

(5) Motion of a vehicle on straight road, motion of a striker on the carrom board, motion of train on a straight track, motion of a falling stone, movement of the drawer of a table, Motion of a boy sliding down a slope .

Rectilinear motion takes place in fixed direction.

Circular Motion: When an object moves along a circular path, it is called circular motion.

(1) The moon moves around the earth in a circular path, the movement of moon around the earth is an example of circular motion.

(2) The movement of artificial satellites around the earth is also circular motion.

(3) The movement of earth around the Sun is also an example of circular motion.

(4) Movement of all the planets around the Sun is circular motion.

(5) The movement of tip of the hand of a watch on the dial.

(6) A ceiling fan remains at one place but its blades rotate in circular motion.

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(7) The round and round movement of a child sitting on a merry go round (or a giant wheel) is also circular motion.

(8) An athlete running on a circular track inside a stadium.

(9) A bull tied to rope a moving around a fixed pole is also an example of circular motion.

☞ **Periodic Motion:** The motion which repeats itself after regular intervals of time is called periodic motion.

(1) The motion of seconds' hand of a watch is repeated after regular intervals of time, the motion of seconds' hand of a watch is an example of periodic motion.

(2) The revolution of earth around the sun is periodic motion because the earth always takes the same amount of time to complete one round around the sun.

(3) The rotation of earth on its axis is a periodic motion because the earth always takes the same time to rotate once on its axis.

(4) The revolution of moon around the earth is also a periodic motion because the moon always takes the same time to complete one round around the earth.

(5) Swinging of a pendulum; motion of pendulum of a "pendulum clock"; "motion of a child on a swing" motion of the branch of a tree moving to and from.

(6) The orbiting of a satellite around the earth, the vibrations of stretched membrane of a drum (Dholak or Tabla) when struck.

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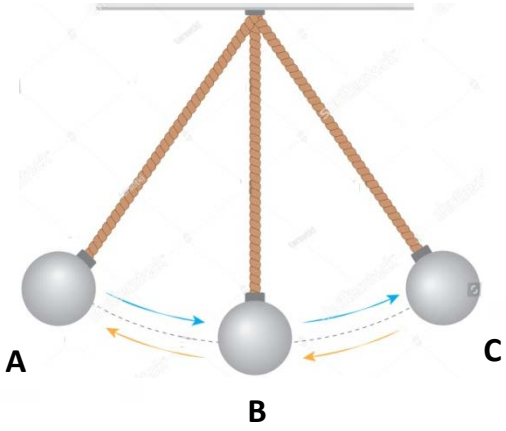
A pendulum consists of a small metal ball (also called as bob) suspended by a long thread from a rigid support, such that the bob is free to swing back and forth. Initially the pendulum is at position B. If we pull the bob a pendulum a little to the left side up to position B and then release it, the pendulum bob starts moving like a swing between positions A and C. The swinging of pendulum bob from position A to C, and back to A is called one vibration. A pendulum always takes the same time to complete its "one vibration" or oscillation. Since a pendulum repeats its vibrations regularly after fixed time intervals, therefore, a vibrating pendulum or swinging pendulum is said to have a periodic motion.



Rotational Motion: When an object turns (or spins) about a fixed axis, it is called rotational motion.

For example: The motion of a spinning top, the spinning of earth on the axis, turning of the blades of a fan, rotation of a wind mill or phirki, turning of a ball, turning of the hands of watch, turning of potter's wheel, turning of a bicycle wheel.