

Physics

(Activity 1 – To show the tangential motion of an object when it is released from circular motion.)

Chapter 8– Motion

CLASS –IX

Duration:30 minutes

Nature of activity: Group

Learning outcome : The students will perform the activity and analyse how an object follows a tangential path when it is released from circular motion.

What we have to do? To show the tangential motion of an object when it is released from circular motion.

What is required?

Tennis_ ball, String, length 0.5 m approx.

What do we need to know? Uniform circular motion can be described as the motion of an object in a circle at a constant speed. As an object moves in a circle, it is constantly changing its direction. At all instances, the object is moving tangent to the circle.

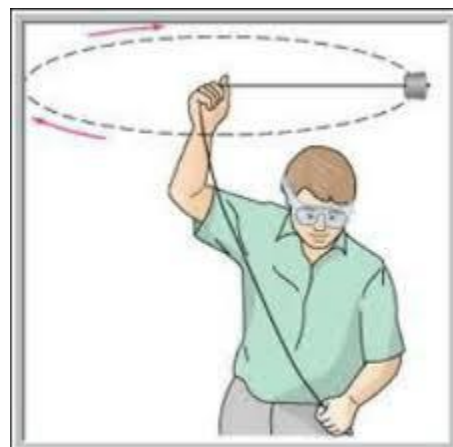
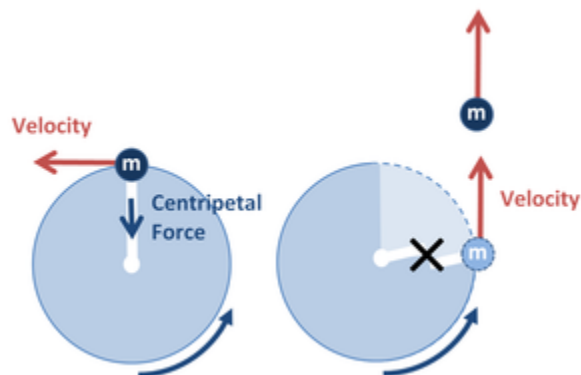
How will you proceed ?

Teacher's activity

Teacher will explain about the tangential motion and arrange 10 kits, each having tennis ball and string

Student's activity

1. Attach the tennis ball to a string and swing it round in a circle of radius 50 cm, horizontally above the head. Hold the string tightly as you whirl it around.
2. Release the string so that it travels tangentially towards the side of the room.



What have you observed ?

S.No	Location of object	Type of motion
1.	Moving in a circle	
2.	Released from hand	

What you have learnt?

If we consider an object moving in a circle of radius r with constant angular velocity, the tangential speed is, but the direction of the tangential velocity vector as the object rotates.

What more can we do?

1. Take a glass and put some small steel balls in it. Give the glass a rigorous swirl and then stop. Observe the motion of the steel balls when the swirling of glass is stopped. Record and explain your observation(s).

Extended Worksheet

1. Explain how a uniform circular motion is different from a uniform motion.
2. If a person jumps off a moving swing, can it be considered as tangential motion? Explain.
3. Earth moves around Sun in a specified orbit. Why it does not follow a tangential path?
4. Can there be only one tangent from a particular point? Explain your answer.
5. Discuss if the motion of electrons in an atom around its nucleus is an example of uniform circular motion.