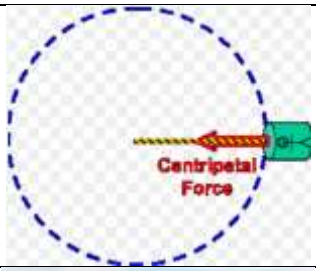
Real-Life Applications of Circular Motion

- Any object that is moving on a circular path experiences a force in towards the centre of the circle of motion.
- This force is known as Centripetal Force.
- Some real-life applications are outlined below.



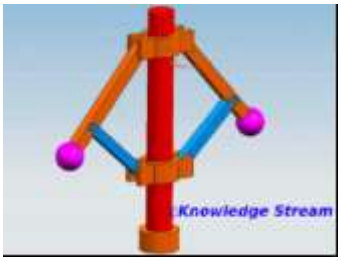
1) Roads are banked on bends to increase the centripetal force, which ensures cars stay on the road easier.

2) When a child is holding onto a merry-go-round, a centripetal force keeps them from falling off i.e. tension in their arm.

3) Acceleration and centripetal forces experienced on roller coasters can give the effect of weightlessness. Originally loops were circular but speeds/forces entering the loop were too high and led to injuries so the "clothoid" shape is more common now.

4) Satellites have to be launched into what's known as geostationary orbit. If the launch velocity is too much, they head off into space and if it's too little, they will fall back into the atmosphere and burn up. Once in orbit, the earth's gravity keeps it in orbit.

5) Speed limiters in vehicles work by limiting the rotational speed of the engine. All heavy vehicles in Europe are fitted with speed governors by law. Fire engines and emergency vehicles are exempt from this, for obvious reasons.



6) Centrifuges are used to separate very small particles of equal weight e.g. red blood cells from the plasma in your blood. They were invented in 1883 by a Swedish engineer and were originally used to separate cream from milk.