**Booklet 8**
**Centripetal Force and Gravitation**

**1.Flipped Classroom | Watch : https://youtu.be/MMiuHPVsFJI**
Derive the equation of Centripetal acceleration and centripetal force. What is the connection between centripetal force and Newton's Universal Law of Gravity?

**2.Do Now |** Watch https://youtu.be/g0Tk_cBwQ1g
A 5 kg bucket (bucket + water) at the end of a rope is revolving uniformly in a circle with radius= 0.6 m much the same way the moon orbiting around the Earth. The bucket makes 2 revolutions per second. (a) Construct FBD to show velocity and centripetal acceleration. (b) Find centripetal acceleration on the bucket + water.
**Do Now Hint** | https://youtu.be/aTzW33fvhDM

**3.Big Idea | Watch : https://youtu.be/UirkeFk6TD8**
Moon circular orbit around the earth has a radius of about 384,000 km and period T=27.3 days. Find acceleration of the moon toward the earth.
Big Idea Hint | https://youtu.be/JGaheNrlex8

**4.Exit Slip | Watch : https://youtu.be/_-NLPhkoFlw**
Find net force on the moon due to gravitational attraction of the Earth. Which formula should you use? Centripetal force or Newton's Universal Law of Gravity?
Exit Slip Hint | https://youtu.be/BQnfWM_pkH4

**5.Homework | Watch https://youtu.be/OXOslha1W_4**
**1.**What direction the revolving bucket would move if rope breaks?
**2.**A 5 kg bucket (bucket + water) at the end of a rope is revolving uniformly in a circle, radius= 0.6 m, much the same way the moon orbiting around the Earth. The bucket makes 2 revolutions in a second. (a) Construct FBD to show : velocity, Centripetal force , centripetal acceleration and centrifugal force (b) Find Centripetal force.
Homework Hint | https://youtu.be/YStJPxdHUvU

The key will be found on the bottom of the website.