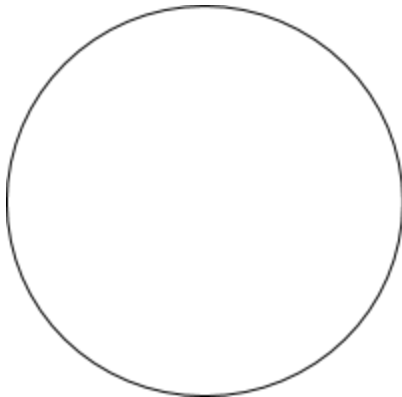# Vertical Circles

Draw a Free Body Diagram. If you do not - you are choosing to get it wrong. You need to see the direction of the arrows.

Draw a Free Body Diagram.

Ferris Wheel:

A ferris wheel is operating with a period (T) of 60s and a radius of 15m, calculate the normal force on a 70kg mass at the top and bottom of the path.

This roller coaster, SkyRider in Toronto, has a radius of 20m. What minimum velocity must riders have so that they don't fall out at the top?

Object swung on rope:

When spinning a pug on its leash you find that the dog goes faster at the bottom than at the top.

There is a minimum speed to go around the top. This is when there is no tension in the leash. ie: $F_T=0$

We can not rely upon constant velocity. Instead we bring the Law of Conservation of Energy.

With what minimum speed must you swing a 5kg pug on a 1.0m leash to go around the circle? What is the F_T when the pug reaches the bottom?