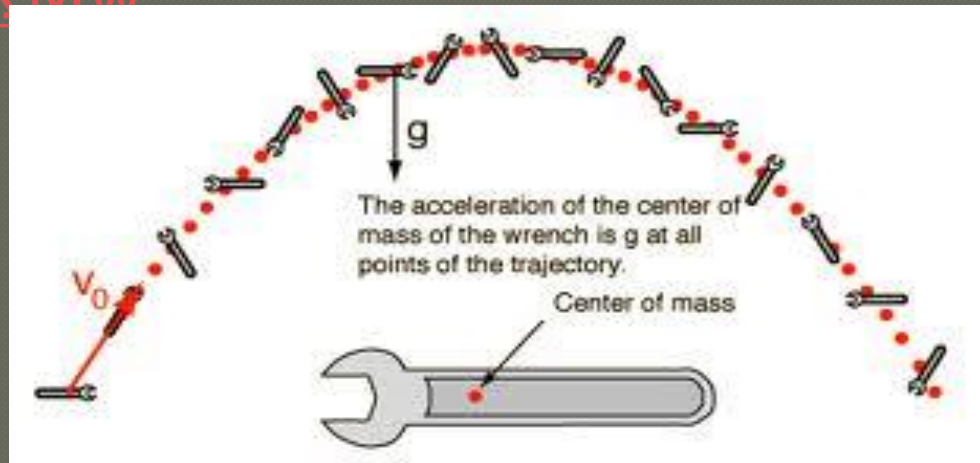


8.3

Equilibrium

Center of Mass

- All freely moving objects will rotate about an axis that goes through their center of mass.
- <http://www.youtube.com/watch?v=ksGsBAWoXMw>



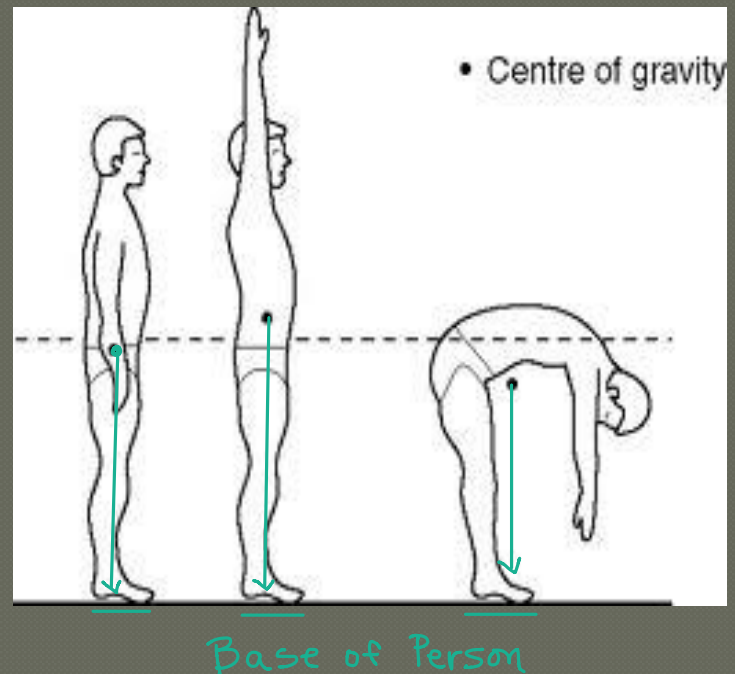
Center of Mass

- The Center of mass of an object acts at its balancing point
- When an object is supported at its center of mass, there is no net force acting on it.



Center of Mass

- The center of mass for a person standing with arms down is a few centimeters below the naval.
- However, the center of mass of a person is not fixed.



* As long as the center of mass of a person or object is located above the base of the person or object - the person or object will remain balanced (meaning they will not fall over or tip over).

* If the center of mass is located outside of the person or object's base - they will fall or tip over.

Ex: If you lean too far forward while reaching for something - you will fall over because your center of mass is outside your base.

(see above picture)