

Friction, Gravity & Air Resistance Notes

- **Friction** is a force that is exerted when two objects rub against each other
 - Friction acts in the opposite direction as the motion
- The amount of friction depends on 2 factors:
 - The type of materials
 - Rougher materials have more friction
 - The force holding the objects together
 - More force provides more friction

- Isaac Newton was one of the first scientists to describe how gravity works
- He discovered:
 - Gravity is a force that pulls two objects together
 - The size of the gravitational force is determined by the mass of the object
 - More mass=more gravitational force
 - Less mass=more gravitational force
 - The earth has much more mass than people do so we are pulled towards the center of the earth whenever we jump or fall
- The pull of gravity is constant and causes objects that are falling to accelerate at 9.8m/s^2
 - This means that every second that an object is falling, its velocity is increasing by 9.8m/s
- All objects fall at the same rate, regardless of their mass
- An object is in free fall if gravity is the only force affecting it

- **Air Resistance**-a type of friction between the air and a falling object
- Air Resistance slows down a falling object
- The amount of air resistance depends on 2 factors:
 - Surface area-the size of the object
 - Larger surface area=more air resistance
 - Velocity-how fast the object is moving
 - Larger velocity=more air resistance
- **Terminal Velocity**-the maximum speed an object can reach when falling because of air resistance

