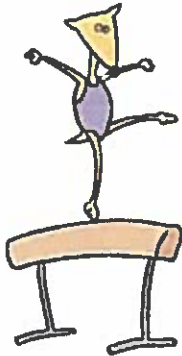


# NEWTON'S FIRST LAW



Newton's First Law = The Law of Inertia

- ❖ An object remains moving at constant velocity (or it stays at rest) unless acted upon by an unbalanced force.

Note: Constant velocity means no change in speed and/or no change in

**Unbalanced Force = the net force is NOT zero**

**Net Force = vector sum of all forces acting on an object**

**INERTIA** = Natural tendency of all objects to resist change in their state of motion or rest. Inertia is directly proportional to the mass of the object.

- The higher the mass, the greater the inertia

**EQUILIBRIUM** = a state during which all forces acting on an object are balanced.



Give an example of an object that experiences acceleration due to changes in direction and speed.

Give an example of an object that experiences acceleration due to changes in speed only.

Give an example of an object that experiences acceleration due to changes in direction only.

Give an example of an object that is in equilibrium.

Give an example of an object that has greater inertia than you.

1. What force do you have to exert on a 10.0 – kg object that is being pulled with force of 150.0N [Up20°Right] and is 1.0m above the ground in order to keep the object in equilibrium?

**Include a Free-Body Diagram.**