Force

PUSH

PULL
Force

a **PUSH** or **PULL**
exerted on matter
1. **start** moving
2. **stop** moving
3. **change** direction
Gravity

a force that **PULLS**
all object towards the earth
Friction

a force that acts in the opposite direction of motion
Gravity

Force of table
Forces

- occur in **pairs**
- **balanced** or **unbalanced**
- have **magnitude** and **direction**
Balanced Forces

forces of equal strength that act in opposite directions
Magnitude

difference between all forces acting on an object

N = Newton
Direction

the way the force and/or object are moving

(left, right, up, down)
\[
\begin{array}{c}
3 \text{ N} \quad \text{3 N} \\
\downarrow \\
0 \text{ N}
\end{array}
\]
**Unbalanced Forces**

one force in a pair is *greater* than the other

= change in motion
$$\frac{5 \text{ N}}{3 \text{ N}} = \frac{5 \text{ N}}{3 \text{ N}} \text{ to the right}$$
Unbalanced Forces

- stop moving
- change direction
- change speed
Review

• Balanced Forces
  * motion of object doesn’t change
  * forces are equal in size
  * opposite direction
Review

• **Unbalanced Forces**
  *motion of object changes speed or direction*
  *forces are unequal in size*
Review

• Forces
  * Gravity & Friction
  * both are FORCES that
    PUSH and PULL