

Force: push or pull

Newton's 1
objects don't change motion unless force

Newton's 2
 $F = ma$
force = mass · accel

Forces

contact · touching

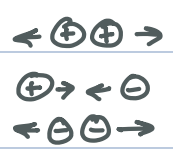
- Friction (F_f)
- Normal (F_N)
- Applied (normal) (F_{app})
- Tension (F_T)
- Spring (F_s) (F_{John}) (F_{Mary})

Field · not touching · over an area

- gravity (F_g)
- magnetic
- electrostatic

The force of gravity is also called weight

not important right now! 😊



Newton's 3

- ① Forces come in pairs
- ② Every force has another force equal in magnitude and opposite in motion

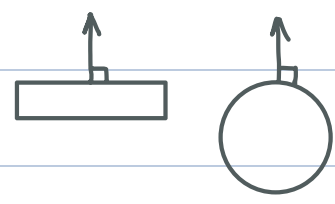
Ex: Forces

- Earth pulling Mr. R
- Person pulling on Earth

(too small to do anything)

Note!

The "Normal" force is always perpendicular (\perp) to the surface



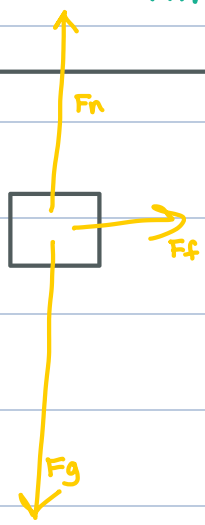
This is true for Everything!

- coffee sliding on table with friction
- table sliding on coffee with friction

Free Body Diagram

Shows all forces acting on a single object

Horse running



Chair sitting there

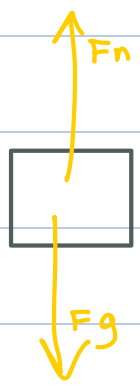


Table with Stilson, Mary 2 iPads, notebook, pen

