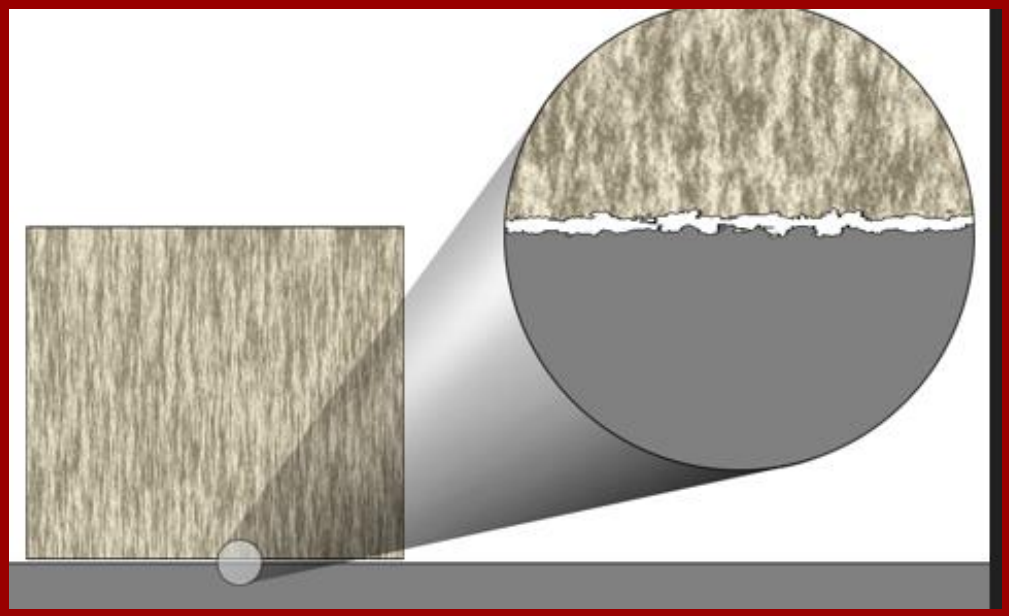


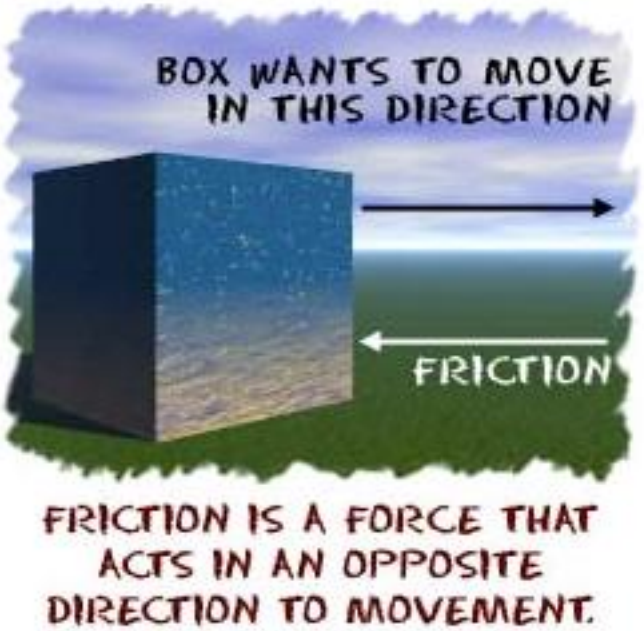
Friction and Gravity

Friction

- The force that 2 surfaces exert on each other when they rub against each other is called __**FRICTION**__

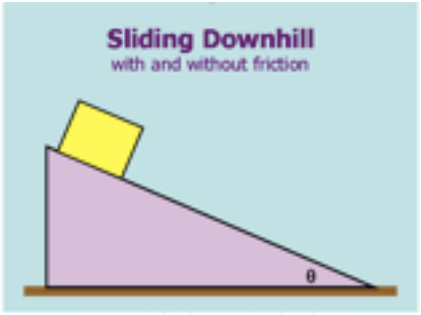
The Causes of Friction

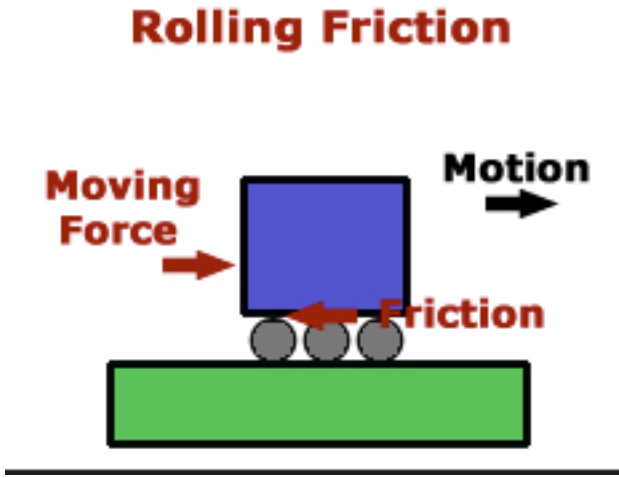
- The 2 factors that friction depends on are: __**HOW HARD THE SURFACE PUSH TOGETHER AND THE TYPES OF SURFACES INVOLVED**__
- Friction acts in the __**OPPOSITE DIRECTION**__ to the object's motion.



4 Types of Friction

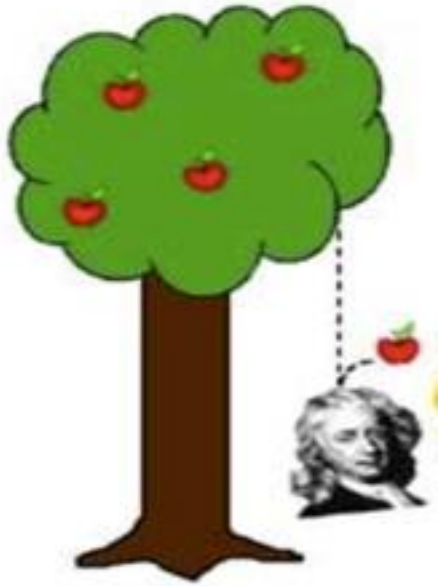
- Friction on __**NON-MOVING OBJECTS**__ is called __**STATIC FRICTION**__
- When 2 solid surfaces slide over each other you get __**SLIDING FRICTION**__
- Objects that roll across a surface is called __**ROLLING FRICTION**__
- The type of friction that occurs when an object travels through a liquid is called __**FLUID FRICTION**__

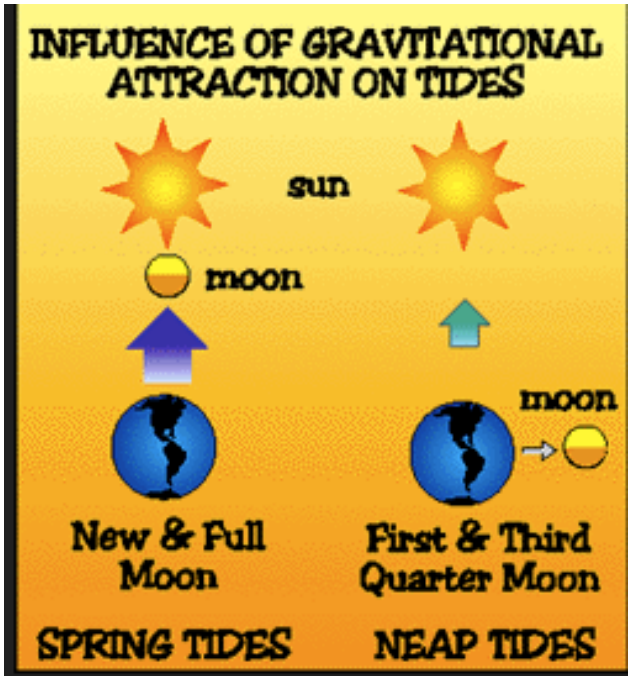




GRAVITY

- The force that pulls objects towards each other is called __**GRAVITY**__
- **Universal Gravitation**
  - Universal Gravitation means that __**ALL OBJECTS ARE ATTRACTED TO EACH OTHER**__

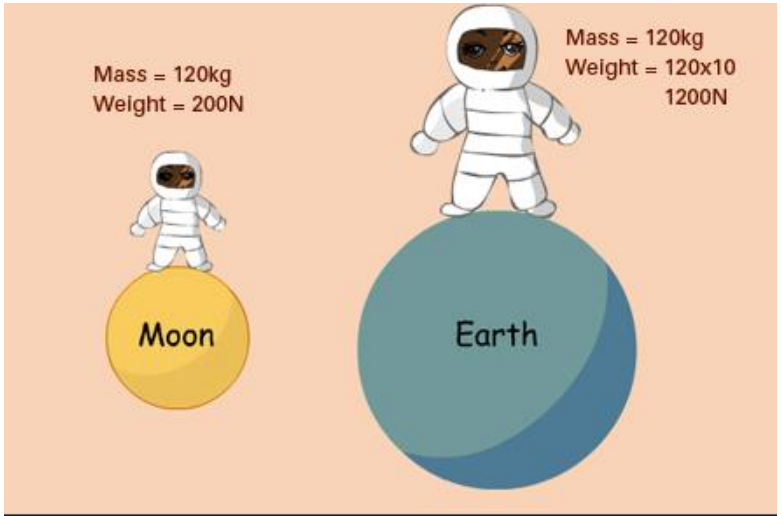


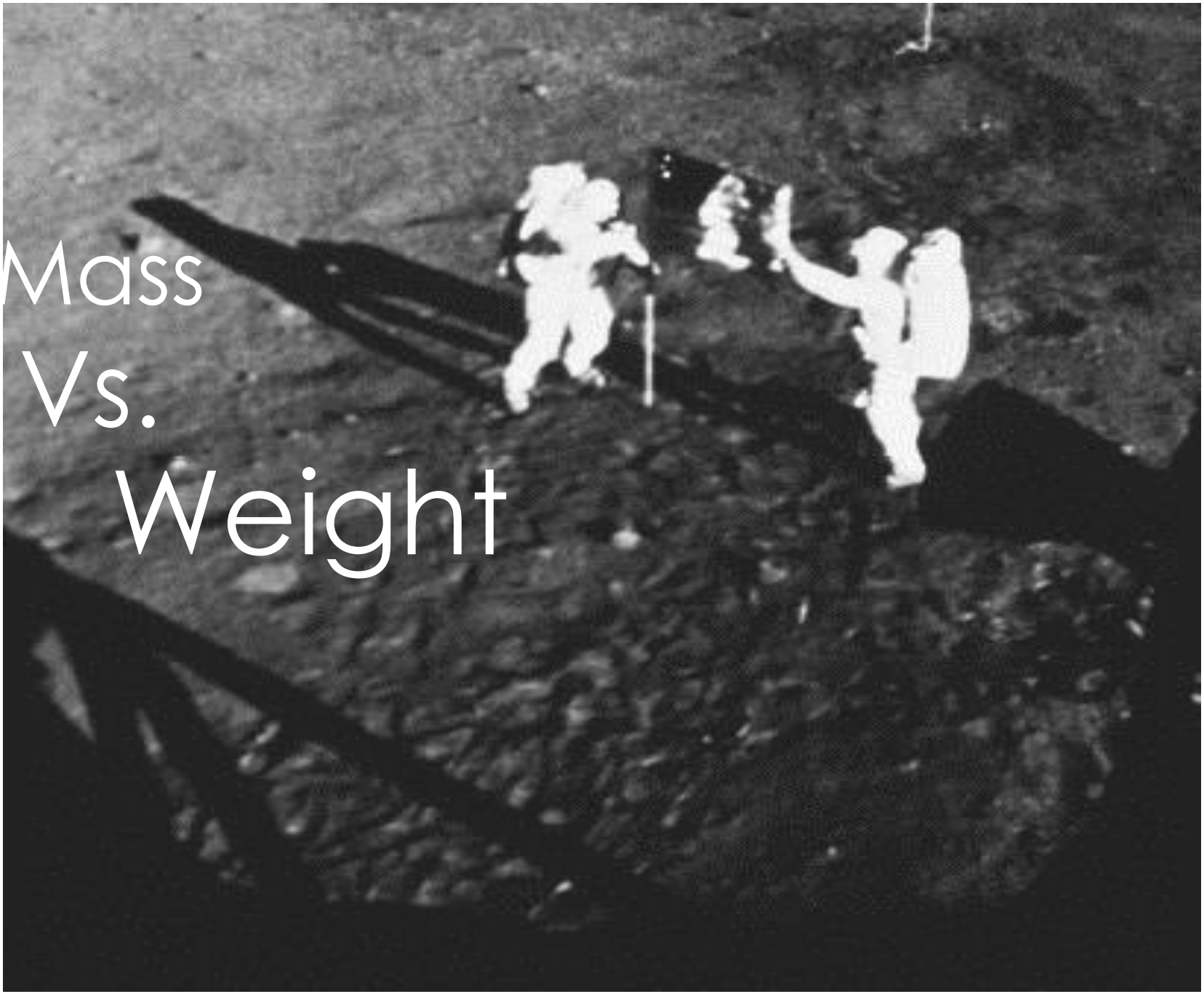


Factors Affecting Gravity

- __**2**__ factors that affect gravity are __**MASS AND DISTANCE**__
- __**MASS**__ is a measure of the amount of matter in an object.
- The SI unit of mass is the __**KILOGRAM**__
- __**MORE**__ mass and __**SHORTER**__ distance means greater gravitational force.

- **Weight and Mass**
  - __**MASS**__ is the amount of matter in an object; __**WEIGHT**__ is the force of gravity on an object.



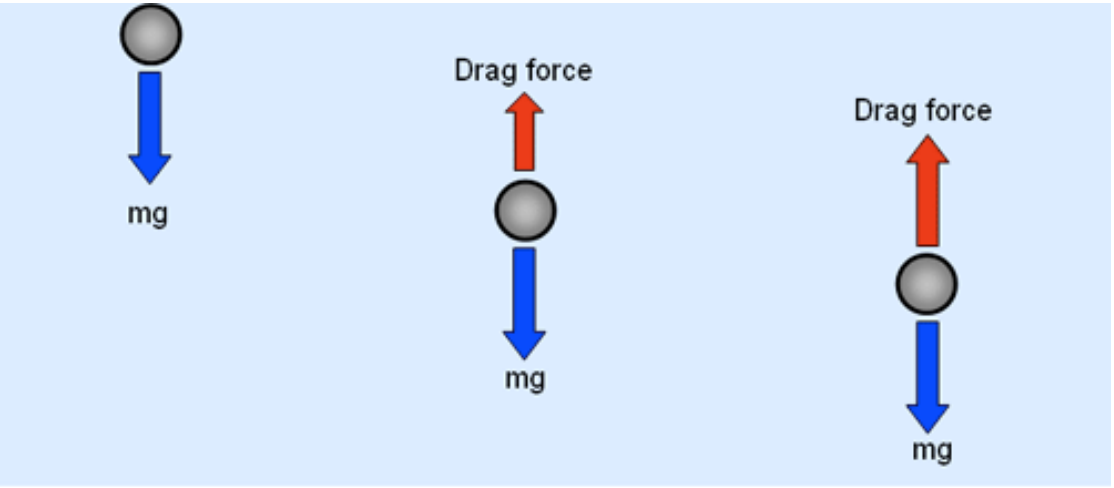

Mass
Vs.
Weight

Weight vs Mass

- **Weight** – the force of gravity on a person or object at the surface of a planet
  - Weight varies with strength of gravitational force
  - Measured in Newtons
- **Mass** – a measure of the amount of matter in an object
  - Measured in grams or kilograms

Gravity and Motion

- **Free Fall**
  - When the only force acting on a object is __**GRAVITY**__ the object is said to be in __**FREE FALL**__
  - Gravity is an __**UNBALANCED FORCE**__
  - Free Fall accelerates at a rate of __**9.8 M/S^2**__
  - __**ALL**__ objects fall at the same rate.

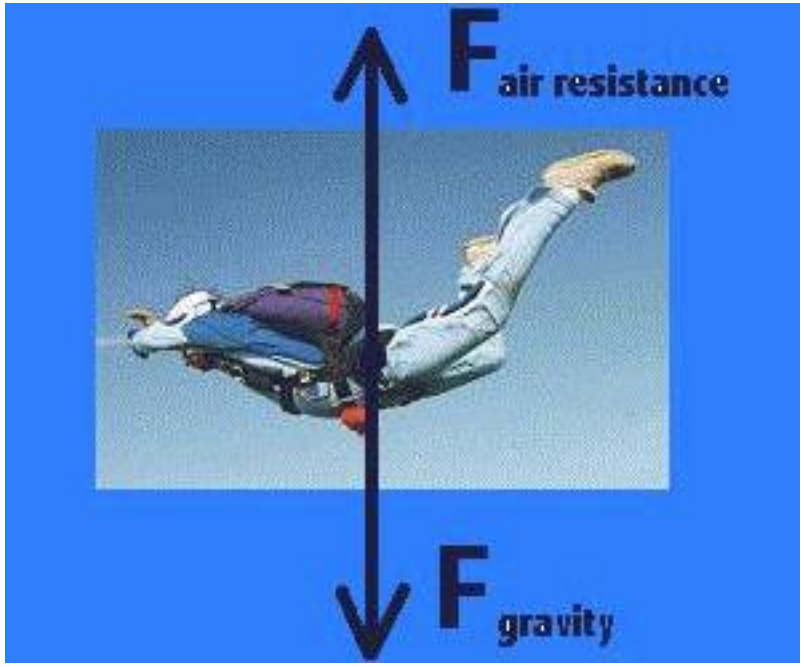


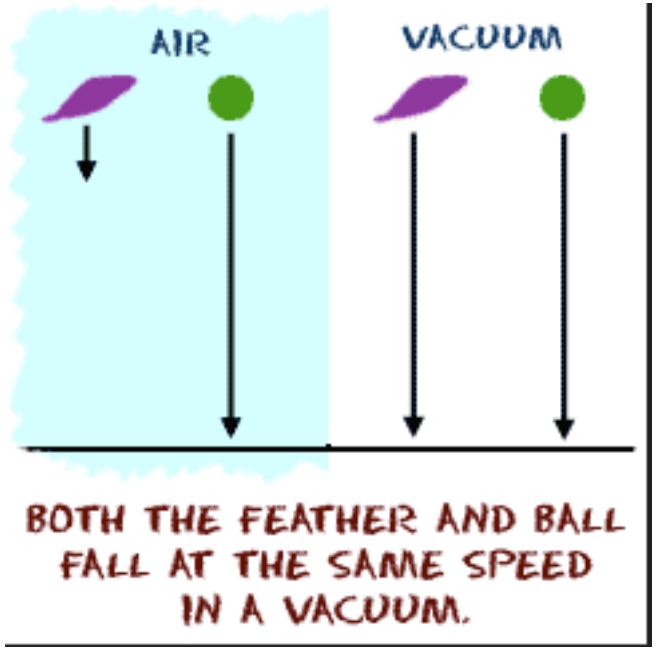
Free Fall

- An object is in free fall when the only force acting on that object is gravity
  - **All** objects accelerate toward the Earth at 9.8 m/s^2
- Objects falling through air experience a type of fluid friction called **air resistance**
  - More surface area = Greater air resistance

Air Resistance

- A type of fluid friction is __**AIR RESISTANCE**__
- Air Resistance is an __**UPWARD FORCE**__
- __**TERMINAL VELOCITY**__ is reached when the force of air resistance equals the weight of the object.





Projectile Motion

- A __**THROWN**__ object is called a projectile
- A projectile will fall at the __**SAME**__ rate as a dropped object.