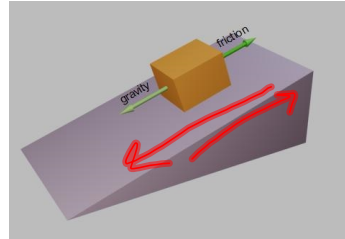


## What is Friction?

**Friction** is the force that two surfaces exert on each other when they rub against each other.

Friction **opposes** motion.



What is Friction?

## The Causes of Friction

Strength of friction depends on two factors:

1. How hard the surfaces push together
2. Type of surfaces involved



*irregularities*

Causes of Friction

## 4 Types of Friction

**Static friction**  
**Sliding friction**  
**Rolling friction**  
**Fluid friction**

Types of Friction

### Static Friction

Static friction is the friction that acts on objects that are NOT moving.



Static Friction

## Types of Friction

### Sliding Friction

Sliding friction occurs when two solid surfaces slide over each other



Sliding Friction

## Types of Friction

### Rolling Friction

Rolling friction occurs when an object rolls across a surface.

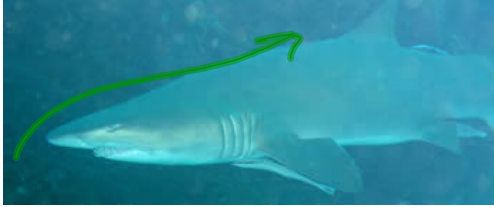


Rolling Friction

## Types of Friction

### Fluid Friction

Fluid friction occurs when solid objects move through a fluid.



water  
air

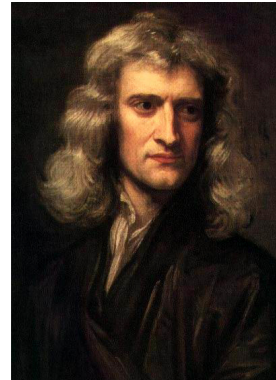
liquids  
gases

Fluid Friction

## What is Gravity?

**Gravity** is a force that pulls objects toward one another.

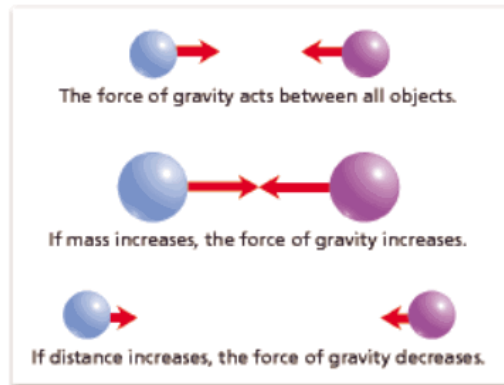
**Law of Universal Gravitation** states that the force of gravity acts between all objects in the universe.



What is Gravity?

## Factors affecting gravity

Force of gravity depends on **MASS** & **DISTANCE**



1. The more **mass** an object has, the greater its gravitational force.
2. The **farther apart** two objects, the lesser the gravitational force between them.

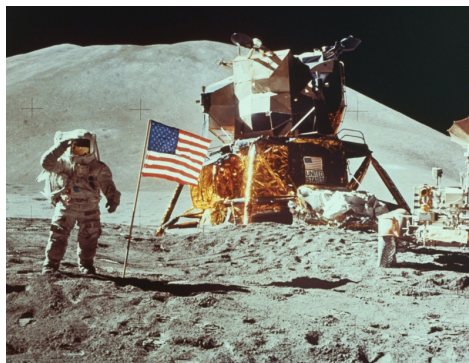
Factors affecting gravity

## Weight & Mass

**Mass** is a measure of the amount of matter in an object;  
kilogram

**Weight** is a measure of the gravitational force exerted on an object, Newton

~~Weight varies~~ with strength of the gravitational force but **mass** does not.



Weight & Mass