# Units

## Base Units

* 3 main Units
  + Mass
  + Length
  + Time
* Everything else is some combination of those
* 2 unit types (base unit in bold):

|  |  |  |
| --- | --- | --- |
| Units | SI (Metric) | Imperial |
| Mass | Mg, g, **Kg** | Lbs, **slug** |
| Length | Mm, cm, **m**, Km | In, ft, **yd**, mi |
| Time | **Seconds** | Seconds but there’s less |

* Imperial is **BIG DUMB** so we use Metric

## Basic Unit translations

* 1 Kg = about 2.2 Lbs on earth
* 2.54 cm = about an inch

# Kinematics

## Kinematics Vocab

* Kinematics- the study of motion itself
* Vector- any quantity with magnitude and direction
* Scalar- any quantity with magnitude only
* Distance- The sum of all the motion of an object
* Displacement- The change in position of an object
  + Variable is x
  + Unit is meters
* Speed- rate of change of distance traveled
  + If you were to graph distance over time, speed would be its slope
* Velocity- rate of change of Displacement (position)
  + Velocity is the vector quantity
  + Variable- v
  + Unit-m/s
* Acceleration- rate of change of velocity

## Kinematics Equations

**NOTE: Many Physics Equations are just equations from Algebra with different variables**

* These are basically just the slope of a line connecting the start and end points
* See equation sheet Sheet for rest