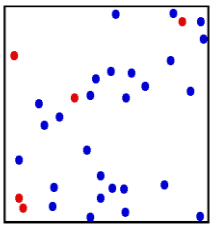
1. INTRODUCTION

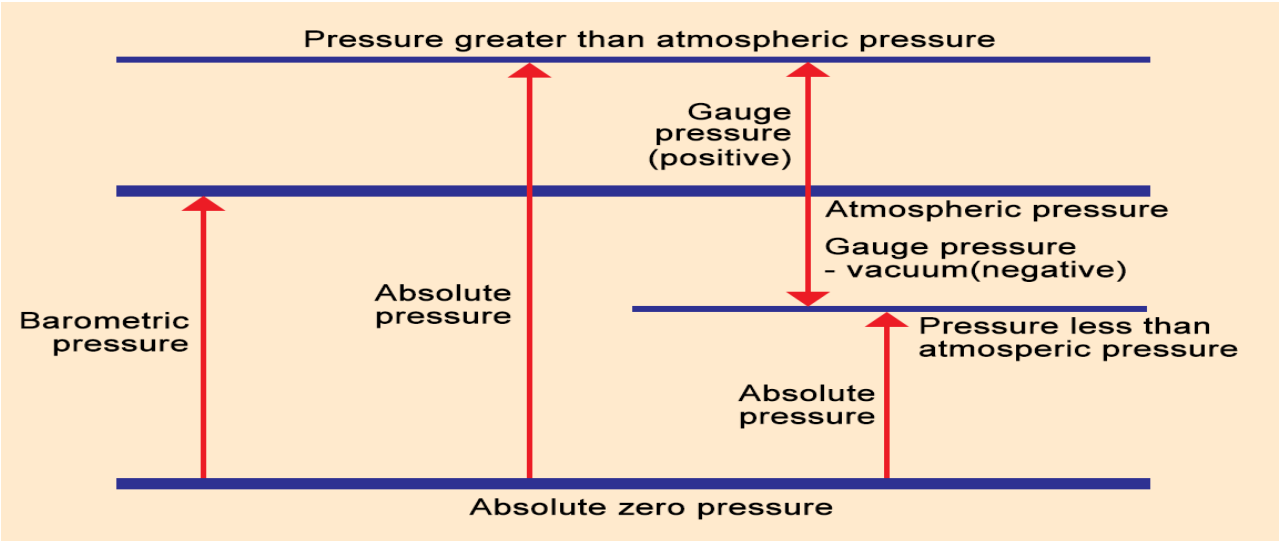
TEMPERATURE: Degree of relative coldness and hotness.
Temperature is effect of kinetic energy of molecule present in the substance.
Kelvin Temperature Scale: No Negative term in the temperature.
0 K = 0 kinetic energy of molecule.
Absolute Temperature: Temperature measured with respect to absolute **zero kelvin** temperature.
TK = TC + 273.



PRESSURE:
1) Normal Force exerted per unit area.
2) Rate of change of moment per unit area.

$$P = \frac{dM}{dt}\Big/_{Area} = \frac{F_n}{Area}$$

Absolute Pressure:



Physical meaning of volume:

gas $\xrightarrow{\Delta}$ Molecules move away => volume increase => Velocity increases => Kinetic energy increases	gas $\xrightarrow{-\Delta}$ Molecules come together => volume decrease => Velocity Decreases => Kinetic energy Decreases

Macroscopic Approach	Microscopic Approach
Average molecules behaviour	Each/individual molecules behaviour
Classical Thermodynamics	Statistical Thermodynamics because Large number of equations required to be solved
Qty uses: Average P, T, V	
Use in internal combusting engine, RAC, Power Plants	Use in Plasma, Laser, Missiles

Continuum Hypothesis: Metter is continuous function of space, time.
1 m^3 => 2.4* 10^{24} Molecules
Mean Free Path: Average distance between molecules.
MFP < Characteristic length (**Continuum concept is valid**)
Highly vacuum condition /at high elevations /Rarefied Gases /MFP > Characteristic length (**Continuum concept is not valid**)
Because elevations ∧ => Pressure ∨ => Density ∨ => Volume ∧ => MFP ∧