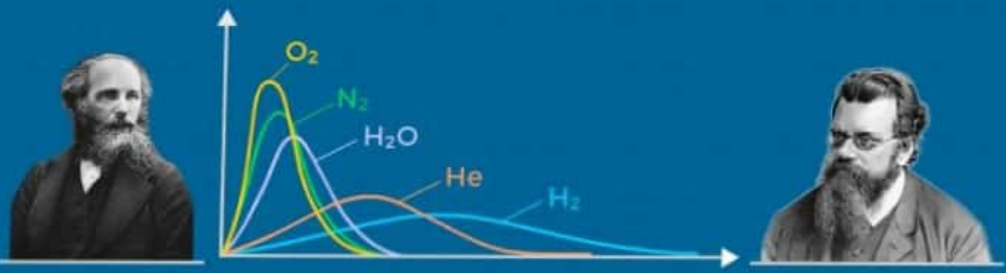
DISTRIBUTION OF MOLECULAR VELOCITIES



Maxwell Boltzmann stated, all molecules don't have similar velocity. Each molecule moves with different velocity.

AVERAGE VELOCITY

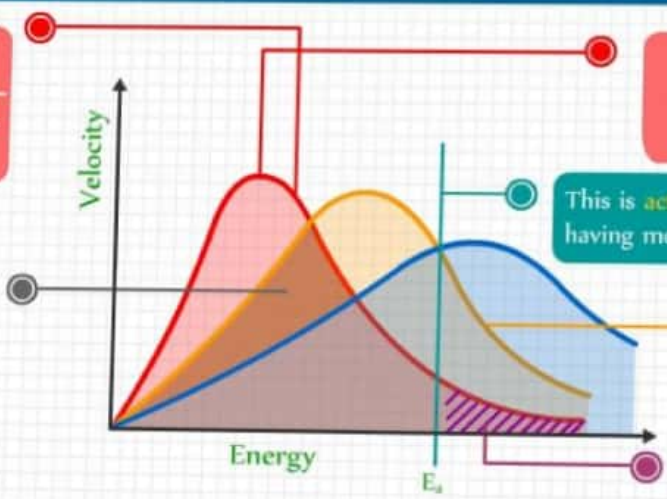
Average of all the velocities of gas molecules

A.V. = $\sqrt{\frac{8RT}{\pi M}}$

MOST PROBABLE VELOCITY

Velocity of Maximum number of molecules

M.P.V. = $\sqrt{\frac{2RT}{M}}$



This is activation energy (E_a) barrier, Molecules having more energy than this participate in reaction.

As temperature increases, fraction of molecules having more energy than Activation energy (E_a) increases.

Fraction of molecules having more Kinetic energy than Activation energy (E_a).

AREA

Area under these graphs gives total kinetic energy of gas molecules

$A = \int F.dv$

F = fraction of molecules

ROOT MEAN SQUARE VELOCITY

Average velocity may be zero, because velocity is vector, RMS = $\sqrt{\frac{3RT}{M}}$ so we use root mean square velocity.