Equations and Stuff (Week One)

$$PV = nRT$$

$$E_{photon} = h\nu = \frac{hc}{\lambda}$$

$$t = \frac{stock}{flux} = \frac{1}{\Sigma k}$$

$$P_T = \Sigma c_i P_i$$

$$P^o = \frac{M_{atm} g}{4\pi r^2}$$

$$P_h = P^o e^{-\left(\frac{\overline{M}_{air} g h}{RT}\right)}$$

Derived Values

$\overline{M}_{air} = 28.96$ g/mol (tropo and strato)

$n_{air} = 2.69 \text{x} 10^{19}$ molecules/cm^3 (at STP)

Useful Bits

STP = 273K, 101,300 Pa (O^{o}C, 1.00 atm)

Planck's constant; h=6.626 x 10^{-34} J s

Speed of light in vac; c = 3.00 x 10^8 m/s

Acceleration due to gravity; g = 9.8 m/s^2

Universal gas constant; R = 0.0206 L atm mol^{-1} K^{-1} = 8.314 J mol^{-1} K^{-1}

Pa = N m^{-2} N = kg m s^{-2} J = N m = kg m^2 s^{-2}

Terminology (Week ONE)

Source, Sink

Reservoir/Compartment

Transformation

Thermodynamics

Kinetics

Residence Time/Lifetime

Primary Pollutant

Secondary Pollutant

Box Model

Troposphere, Stratosphere, Mesosphere, Thermosphere

Radical

Covalent oxide