

# Mole Concept - (Knowing the "Invisible")

• Using Grouping to measure the "unmeasurable"

↳ Grouping "nickname", the mole

• Mole relates counting base units (particles)

• massing  
• Volume (of only gases @ STP (Standard Temp & Pressure))

Counting/Number

Massing

Volume

$$1 \text{ mole} = 6.02 \times 10^{23} \text{ particles} = \text{"Atomic mass"} \text{ i.e. } 12 \text{ g} = 22.4 \text{ L of any gas @ STP}$$

Massing

D.A. Atomic mass  $\frac{\text{g}}{1 \text{ mole}}$

Eqv. #mole =  $\frac{\text{#g}}{\text{Atomic mass}}$  or #mole =  $\left(\frac{\text{#g}}{1 \text{ mole}}\right)$

Counting/Number

6.02 x 10<sup>23</sup> particles  
1 mole

#mole =  $\frac{\text{# particles}}{6.02 \times 10^{23} \text{ particles}}$

Substance from particle

Element Atom  
MC 1 mole  
IC 1 formula unit (FU)

Volume

22.4 L @ STP  
1 mole

#mole =  $\frac{\text{#L}}{22.4 \text{ L}}$