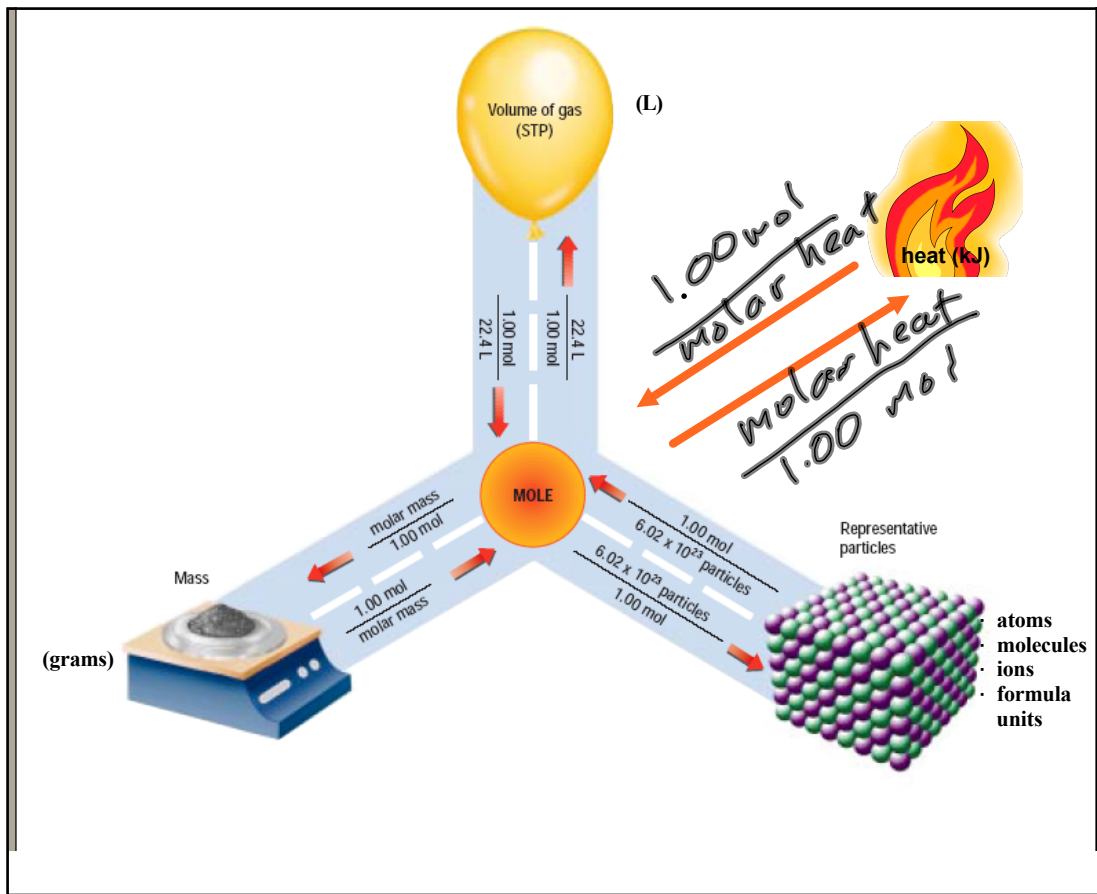


Molar Heat

- amount of heat (in kJ) absorbed or released by a physical or chemical change per 1 mole of substance
- = $\frac{\text{kJ}}{\text{mol}}$
- enthalpy = ΔH



Examples of molar heat : (physical)

change	symbol	endo/exo
fusion	ΔH_{fus}	+
solidification	ΔH_{solid}	-
vaporization	ΔH_{vap}	+
condensation	ΔH_{cond}	-
dissolving (solution)	$\Delta H_{sol'n}$	+/-

} opposite

Examples of molar heat : (chemical)

change	symbol	endo/exo
formation - compound formed from its elements - Hess's Law	ΔH_f°	+/-
combustion	ΔH_{comb}	-
reaction	ΔH or ΔH_{rxn}	+/-

p. 311 #2

How much heat (in kJ) is absorbed when 63.7 g H₂O(l) at 100°C is converted to steam at 100°C?

liquid

$q = C_m \Delta T$

\downarrow (p. 308)

<u>63.7 g H₂O</u>	<u>1 mol H₂O</u>	40.7 kJ
	18.015 g H ₂ O	1 mol H ₂ O

= 144 kJ absorbed

= +144 kJ

p. 323 #71

The molar heat of vaporization of ethanol ($\text{C}_2\text{H}_5\text{OH}(l)$) is 43.5 kJ/mol. Calculate the heat required to vaporize 25.0 g of ethanol at its boiling point.