$P_{solute} = K_H X_{solute}$ Henry's Law

"Like dissolves like" refers to IMF

Most mixtures → ΔH is small (near 0) and positive

If large positive ΔH then the substance won't dissolve

} iClicker Quiz

$\Delta G = \Delta H - T\Delta S$

If T increases, ΔG is more negative ∴ higher solubility

$\Delta H_{solution}$ for a gas is Negative

└ Don't have to break IMF

If ΔG has large negative magnitude → high solubility

If ΔG has large positive magnitude → low solubility

Methanol, CH_3OH, is miscible w/ H_2O because a significant chunk of it is polar

Solution has higher entropy than separate substances

Solution has about the same enthalpy as separate substances

Make solution ↘ Entropy increases ↘ Free Energy Decreases ↘ MOAR stability

Freezing point of solution is lower

└ Because of higher entropy. The more you dissolve, the lower freezing point you get.

Solution has lower VP due to higher entropy

In turn, that means a higher boiling point

Van't Hoff factor

i = number of ions

BP Elevation	$\Delta T = i K_b m_{solute}$	m = molality
FP Depression	$\Delta T = -i K_b m_{solute}$	
Δ VP	$\Delta P = -X_{solute} P^o$	P^o = $VP_{solvent}$
Raoult's Law	$P_{solution} = X_{solvent} P^o$	X = mole fraction

Osmosis: movement of water to lower free energy throug semi-permeable membrane

$\Pi = iMRT$

HypOtonic Solution: Cell looks like O

water goes in.