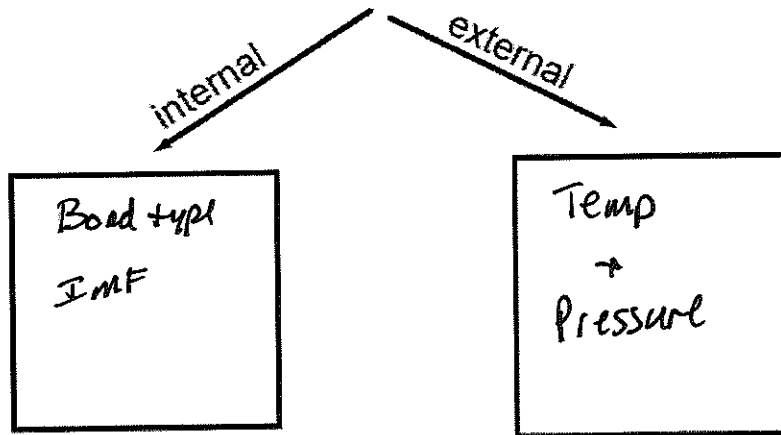
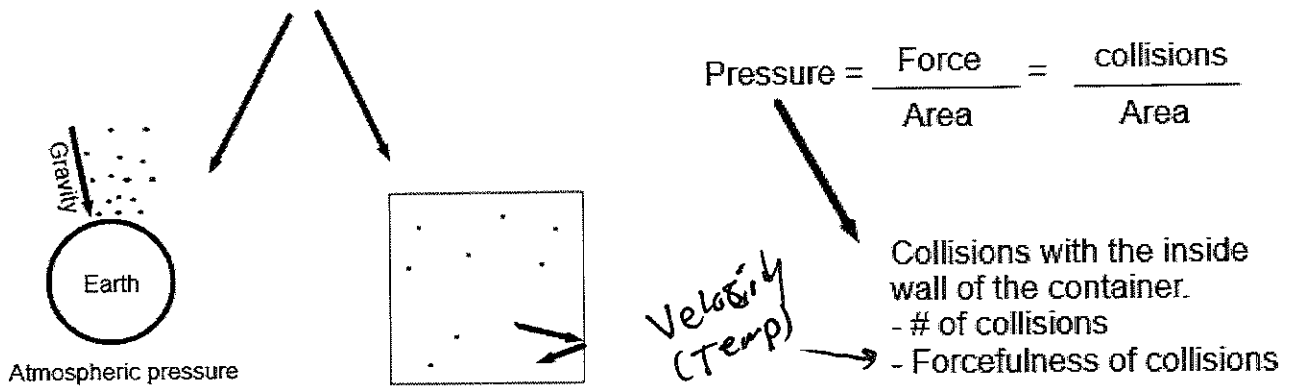


Liquids Classroom Notes

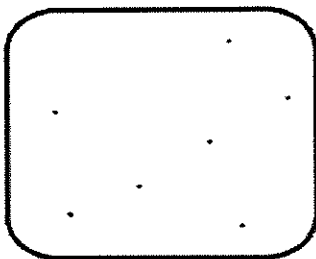
Why is a liquid a liquid?



Pressure can take two forms.



Regardless of how pressure is utilized
 1 Atm = 760 mmHg = 760 torr



The container has its temperature increased from 30C to 50C. Answer the following questions.

a. How does ~~the pressure~~ the number of collisions change in the container and why?

increase, moving faster

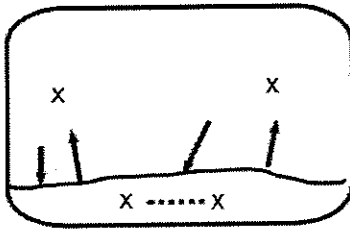
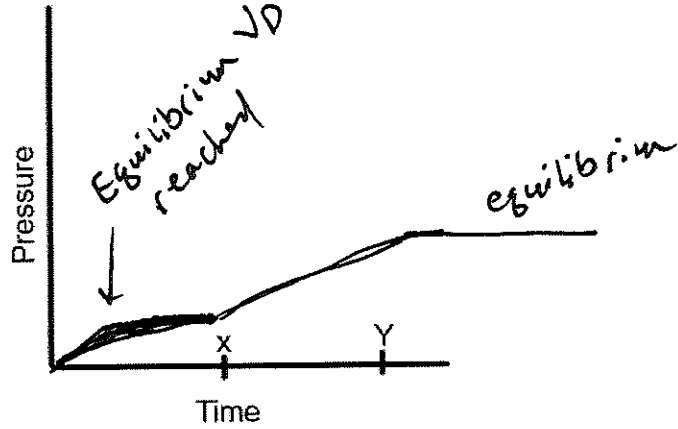
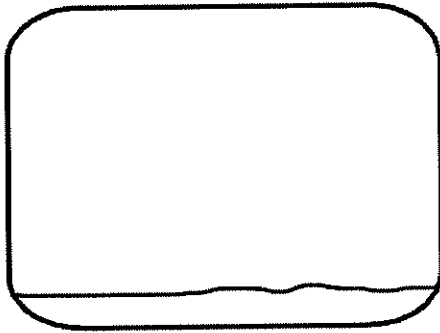
b. What happens to the pressure in the container?

increase, more collisions with the inside container of the wall.

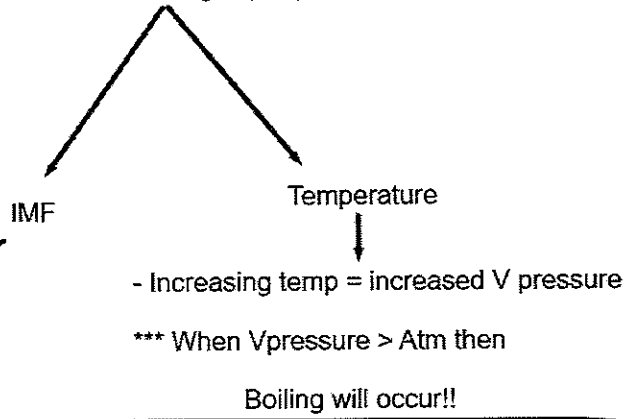
Pressure plays a larger role in gases, but it plays a role in liquids mostly in Vapor pressure.

A sample below is poured in to an a container and sealed at a constant temperature. At time X the temperature is warmed until time Y. After which the temperature is constant.

Sketch what the graph will look like under these circumstances.



Factors affecting vapor pressure.



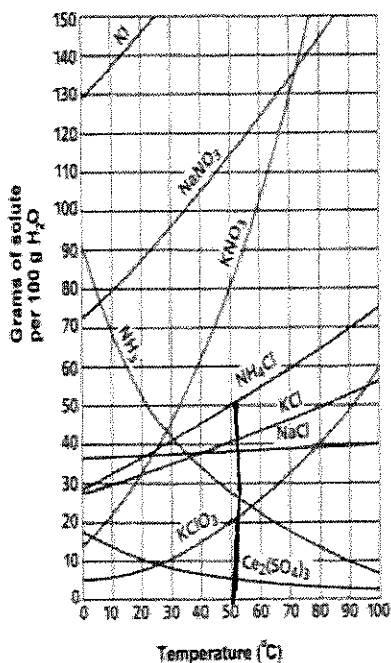
Q: CO₂ and NH₃ are in a container as the temperature is cooled. Which will condense first?

NH₃, Contains H Bonding
 ↑ IMF causes ↑ attraction.

Q: What is the vapor pressure of water at 100°C?

water Boils @ 100°C
 so Vp = ATM

Typical ATM = 1 ATM
 or 760 mmHg



Sample Question

At 50°C a 50g sample of NH₄Cl (MW: 53g/mol) is added to a 100mL sample of water and stirred. Which of the following is true?

- I. This solution will conduct electricity. *N Same concentration*
- II. This solution is saturated. *Yes*
- III. This solution has a concentration of NH₄Cl less than 1M.

If the temperature of a substance is warmed, how will the ability of that substance to dissolve stuff change. (Use arrows below, ↑↓)

Solid: ↑
 Gas: ↓

M = n/V
10M NaCl / 1L = 10M
Very close

Mathematical composition of liquids

How much stuff will dissolve in a solvent.... depends on how much solvent relationship... ratio?

$$\text{Molarity} = \frac{\text{Moles solute}}{\text{Liters of solvent}}$$

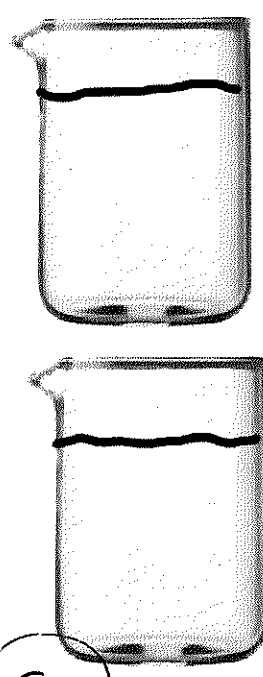
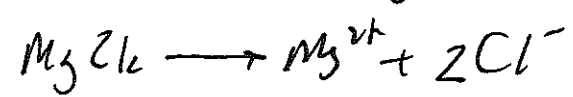
58g · $\frac{1 \text{ mol}}{58.5} = 1 \text{ mol}$
 58g of NaCl dissolves in 0.1L of water.
 - Write the dissolving equation.
 - What is the concentration of NaCl? *1 mol / 0.1L = 10 M*
 - What is the concentration of Cl⁻ ion?

10M · $\frac{1 \text{ Cl}^-}{1 \text{ NaCl}} = 10M \text{ Cl}^-$

NaCl → Na⁺ + Cl⁻
 47.1g of MgCl₂ is dissolved in 0.1L
 - Write the dissolving equation.
 - What is the concentration of MgCl₂?
 - What is the concentration of Cl⁻ ion?

47.1g · $\frac{1 \text{ mol}}{95.25} = 0.5 \text{ mol MgCl}_2$
 $\frac{0.5 \text{ mol}}{0.1 \text{ L}} = 5 \text{ M}$

5 · $\frac{2 \text{ Cl}^-}{1 \text{ MgCl}_2} \Rightarrow 10 \text{ M Cl}^-$



Na⁺
 Cl⁻
 Mg²⁺