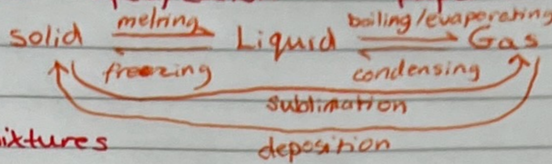
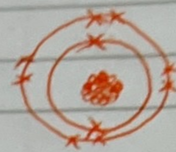
Chemistry IGCSE specification ~ paper 2





Principles of Chemistry —

- States of matter
- Elements, compounds and mixtures
- Atomic structure
- The Periodic table
- Chemical formulae, equations and calculations • gas volumes
  - balance equations • mol x Mr = mass • reacting masses • mol/dm^3
  - percentage yield • empirical (simplified) vs molecular formula (true formula) • water crystallisation
- Bonding
  - Ionic (metal + nonmetal) • Covalent (non metal) • Metallic (metal)
- [Electrolysis • molten ◦ aqueous

Inorganic Chemistry —

- Group 1 (alkali metals)
- Group 7 (halogens)
- Gases in atmosphere
- Reactivity series
- [Extraction & uses of metals
- Acids, alkalis and titrations
- [Salt preparations
- Chemical tests • gases [◦ non gases

P S L C M A C Z I T L H (↑ most … least ↓)

Physical Chemistry —

- Energetics BEN MEX
- Rates of reaction
- Reversible reactions + equilibria

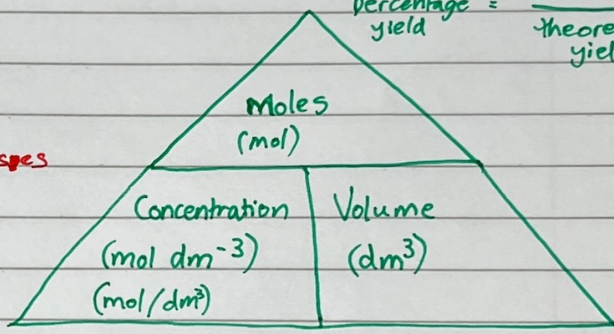
Organic Chemistry —

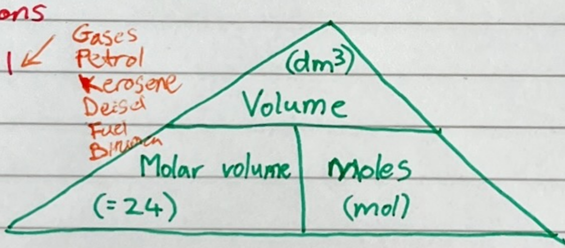
- Hydrocarbons
- Crude oil ↙ Gases, Petrol, Kerosene, Deisel, Fuel, Bitumen
- Alkanes
- Alkenes
- Alchols ↓ oxidised
- Carboxylic acids
- Esters
- Synthetic polymers

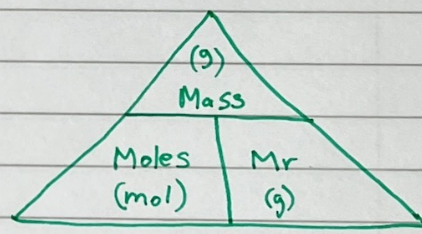
Formulae

- ✓ Gas volumes: volume = amount in mol x mol volume (↑ 24 dm^3 ↑ 24 000 cm^3)
- ✓ Mass: mass = mol x Mr
- Conc/Volume: mol = conc X volume (↑ mol/dm^3 → mol/dm^3, ↑ dm^3)
- ✓ Percentage yield

$$\text{percentage yield} = \frac{\text{actual yield}}{\text{theoretical yield}} \times 100$$







- [heat change: $Q = mc\Delta T$
  - Q = heat change (J)
  - m = mass of water (g)
  - c = specific heat capacity
  - ΔT = temp change

- [enthalpy change: $\Delta H = \frac{Q}{\text{moles}}$
  - ΔH = enthalpy change (J/mol)
  - Q = heat change (J)