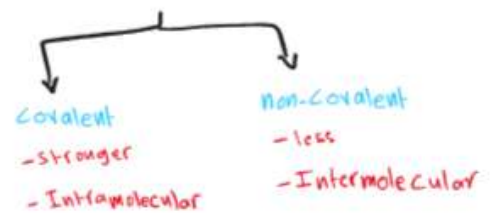


Introduction

* **Biochemistry**: Study Bio-organic compound in living - Cells

* **Elements of life**: we composed of 31 elements
 ↳ most abundant: C, N, O, Ca, P, H
less than other

* **Bonds** الرابطة



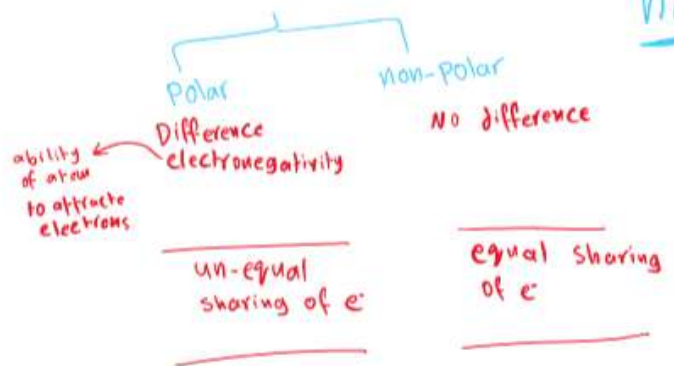
① → **Bond strength**
 energy to break a bond
 Triple Double single
 $\equiv > = > -$

② → **Bond length**
 Distance between 2 nuclei
 single Double Triple
 $- > = \equiv$

③ → **Orientation**
 Angle between atoms

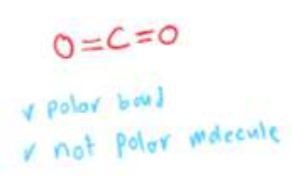
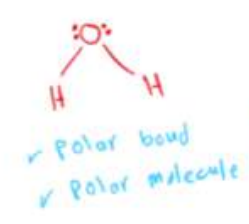


① **Covalen - Bond**



Note: Polarity determined by
 1. electronegativity
 2. geometry

Note: F, O, N most electronegativity
 C-H No difference



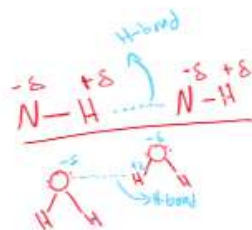
② non-Covalent bonds

- Relatively weak Reversible / specifically interact

- ① Electrostatic (Ionic) ↗ Partially
↘ Fully
- between 2 charged particles.
 - Strong (absence of water).
 - larger charges, stronger bond.

② Hydrogen bond

- between H & other atom with ↑ electronegativity



③ Van der Waals (Weakest)

- electron movement with time around atom
- Affected by Distance
- *Van der Waals*

⊗ hydrophobic Interaction

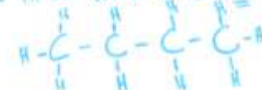


- not true interaction

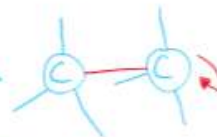
* Carbon (C)

- form 4 bonds ↗ stable

- likes with other C (back bond)



- ability to make isomers



- Polar or non-polar molecule

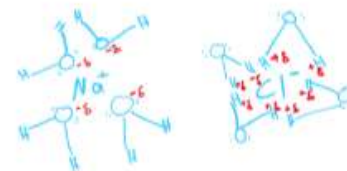
- pure Carbon (not water) Soluble

* Water (H₂O)

- Polar (EN) + Angular (unsure?)



- Excellent solvent



- Nucleophile (reactive)



Nucleophile
↕
electrophile

