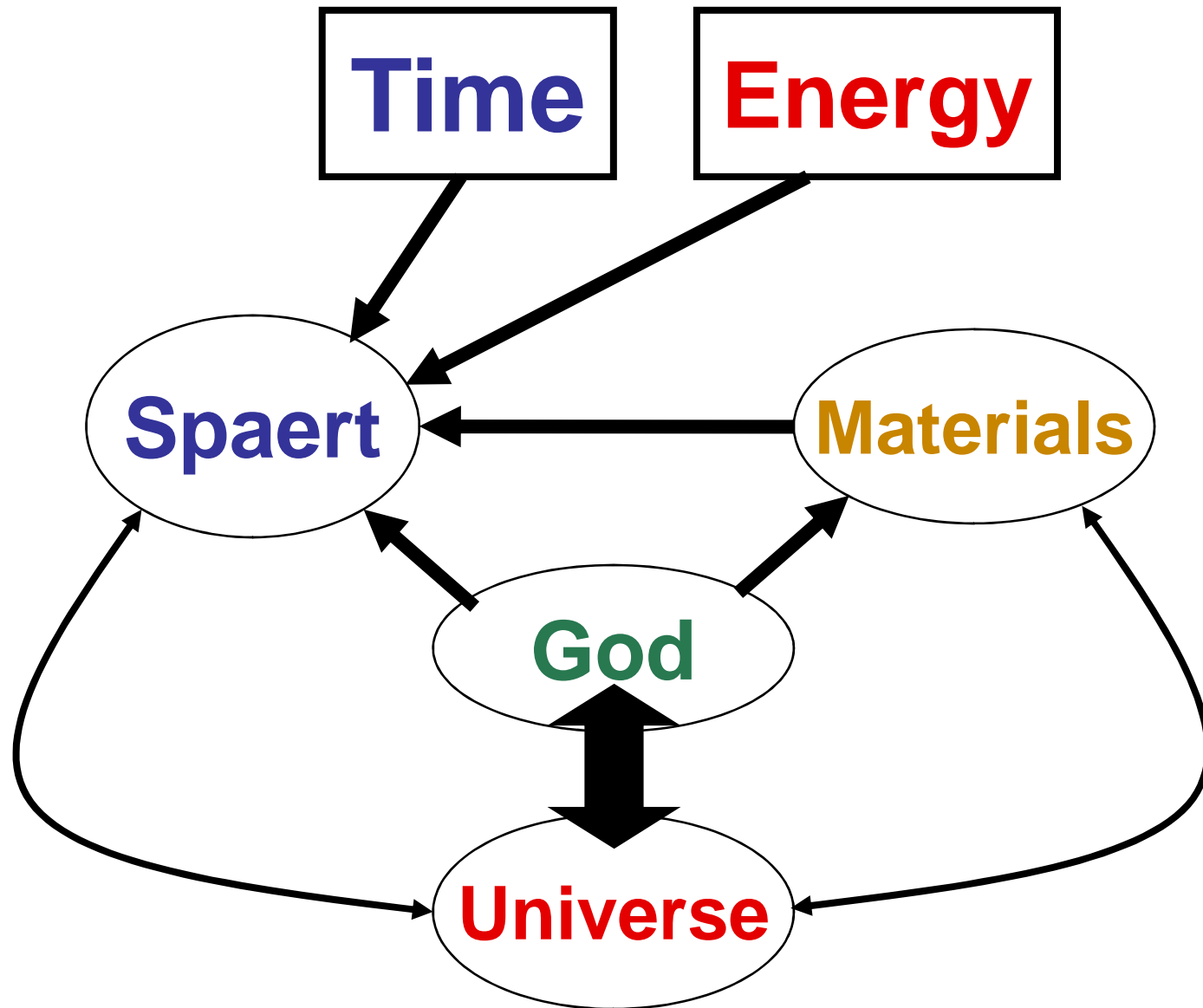


# The foundations of Chemistry

Hassan A. Albar **and** Ammen F. Fahmy

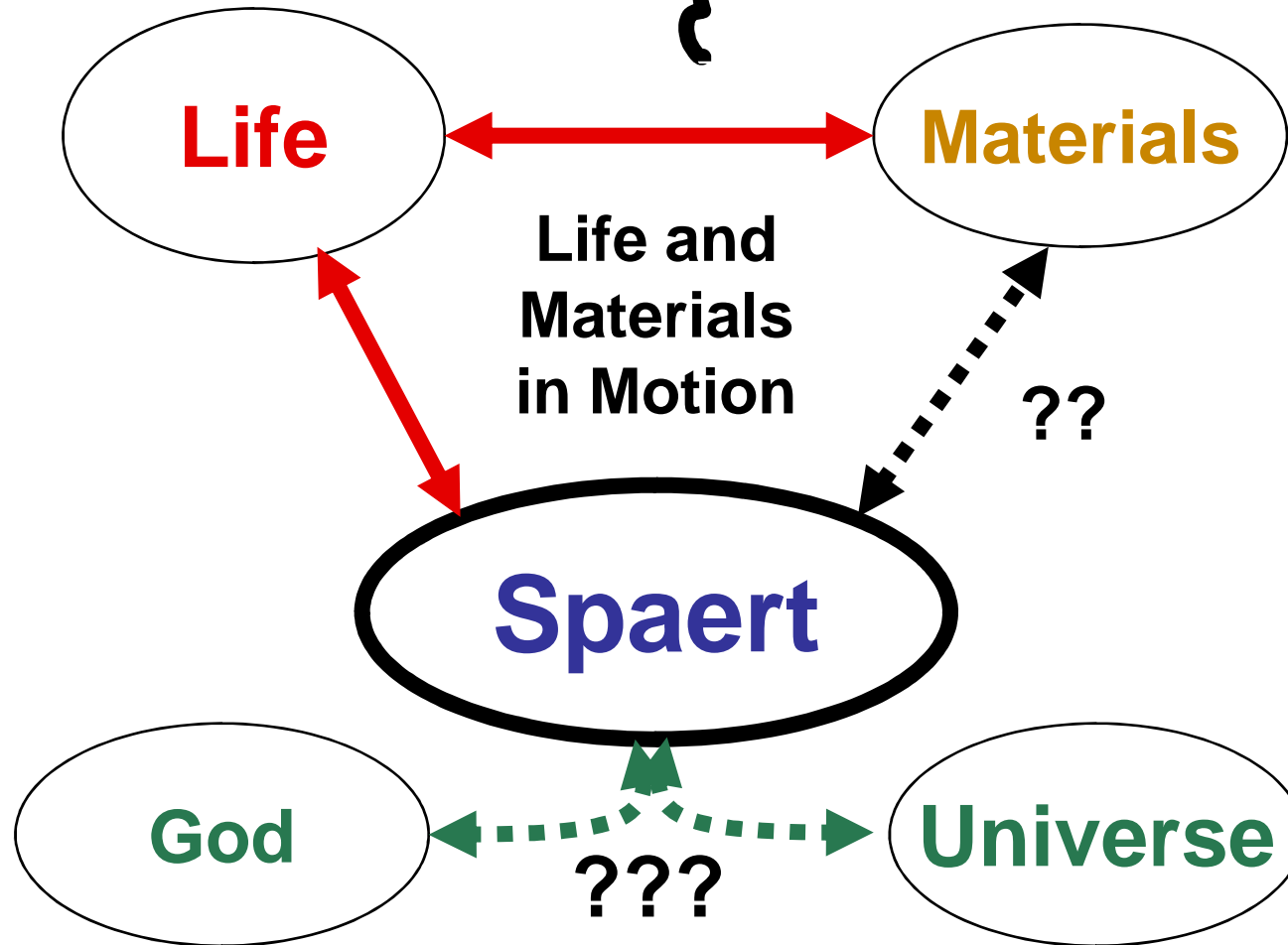
King Abdulaziz University, Saudi Arabia, Jeddah  
**and** Ean Shames University, Cairo, Egypt

**Chemistry Department**

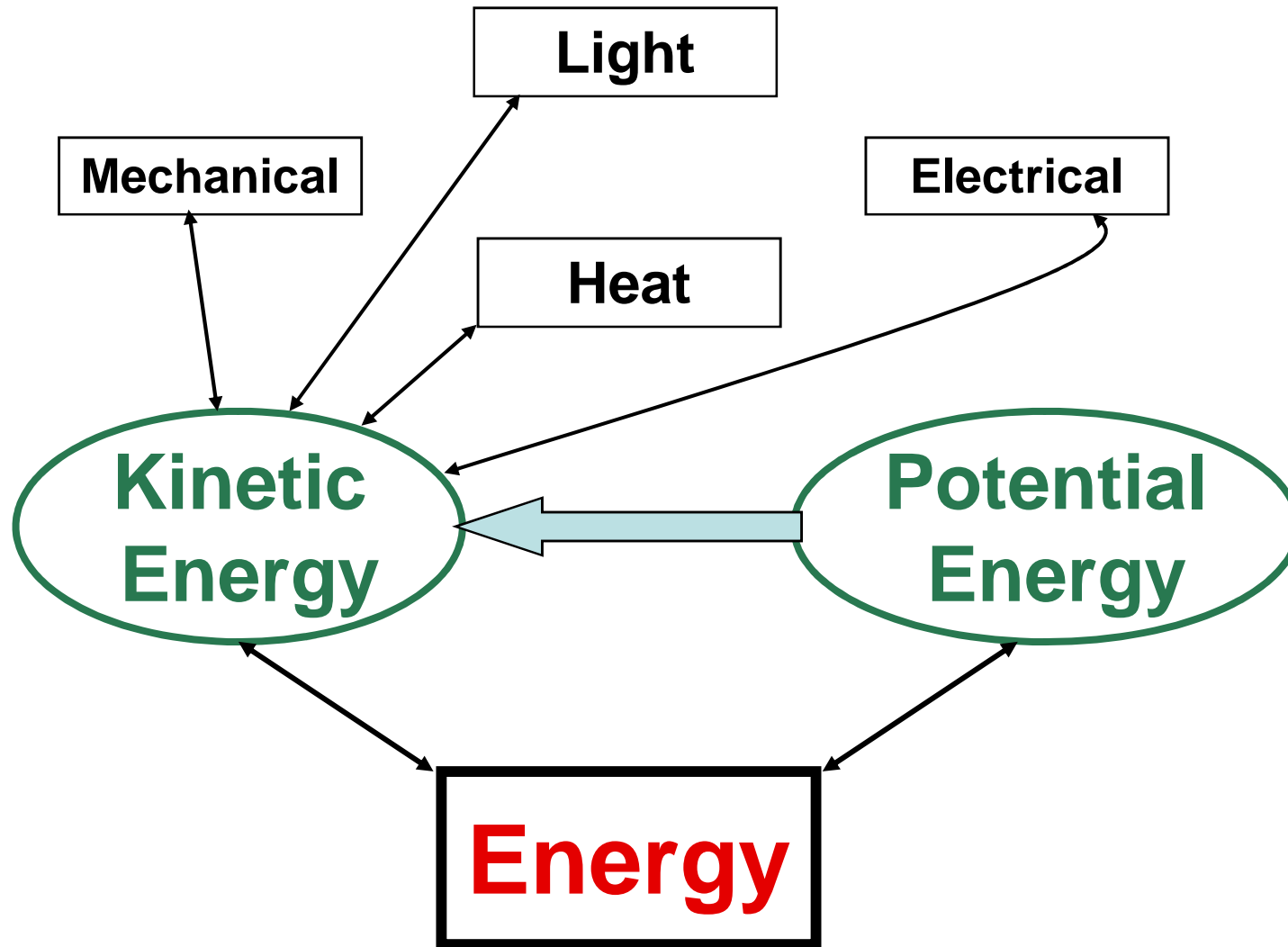


S.D.1: The Law of Conservation of Matter & Energy

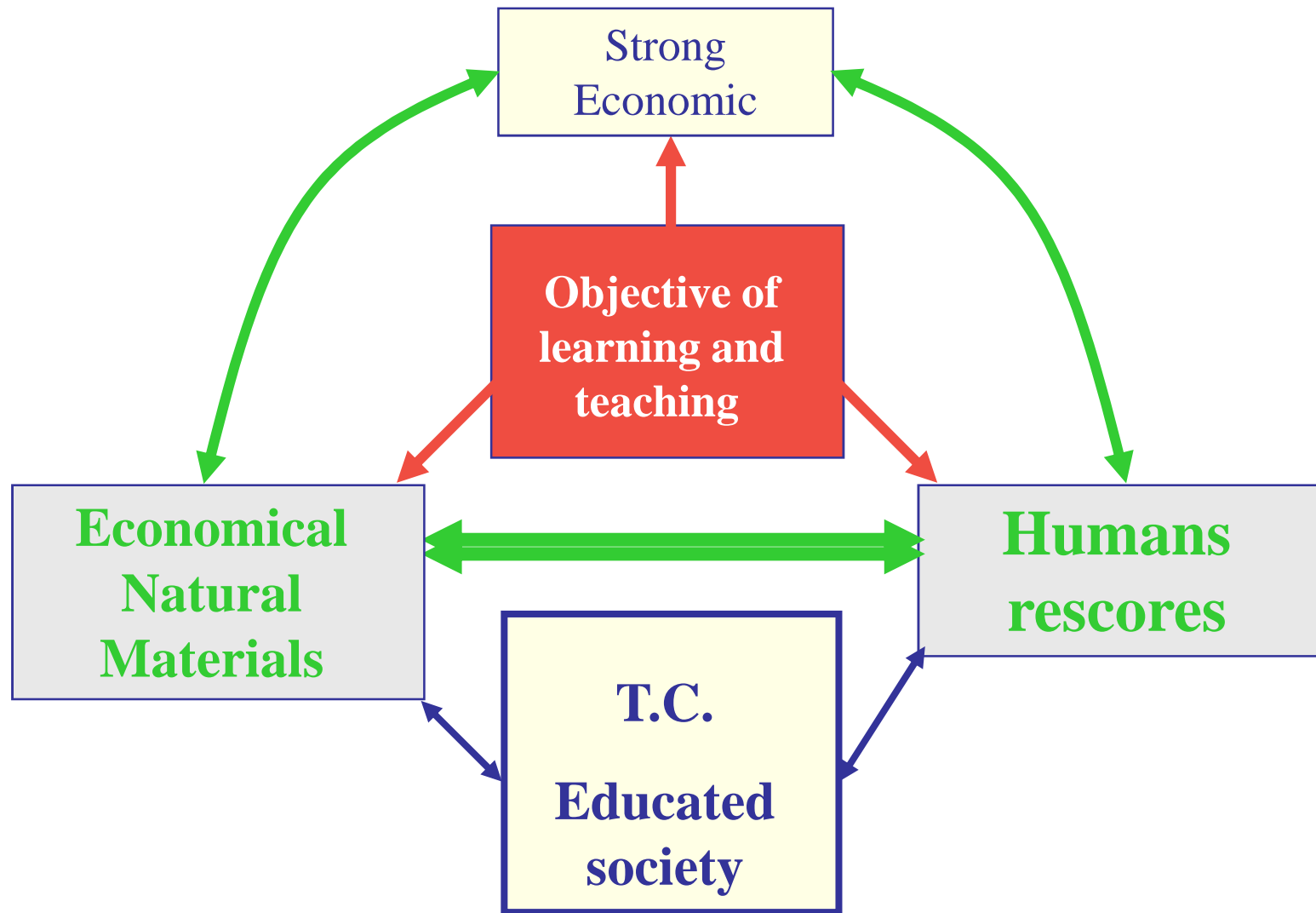
Body Growing } NOT Growing



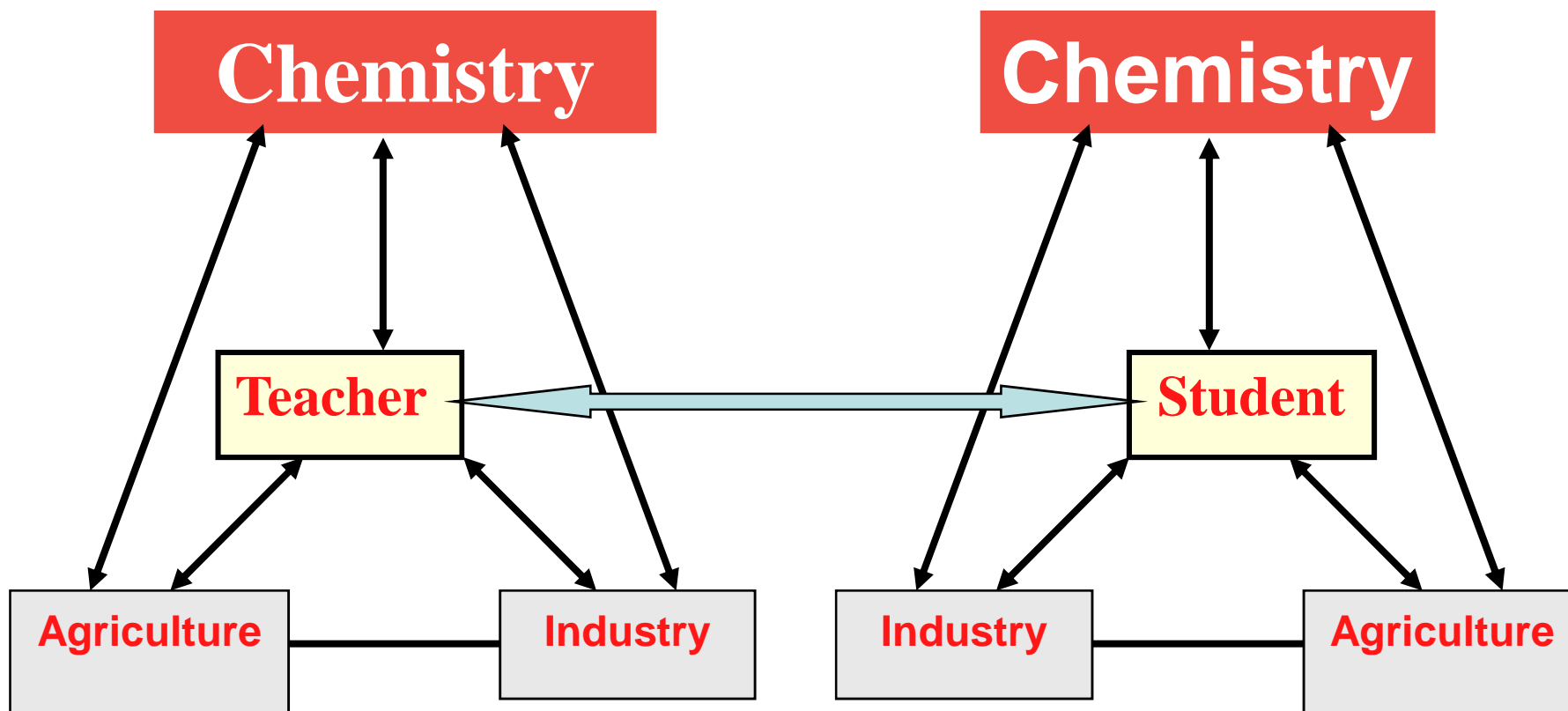
S.D.2: Why we are living in this earth apart of the universe?



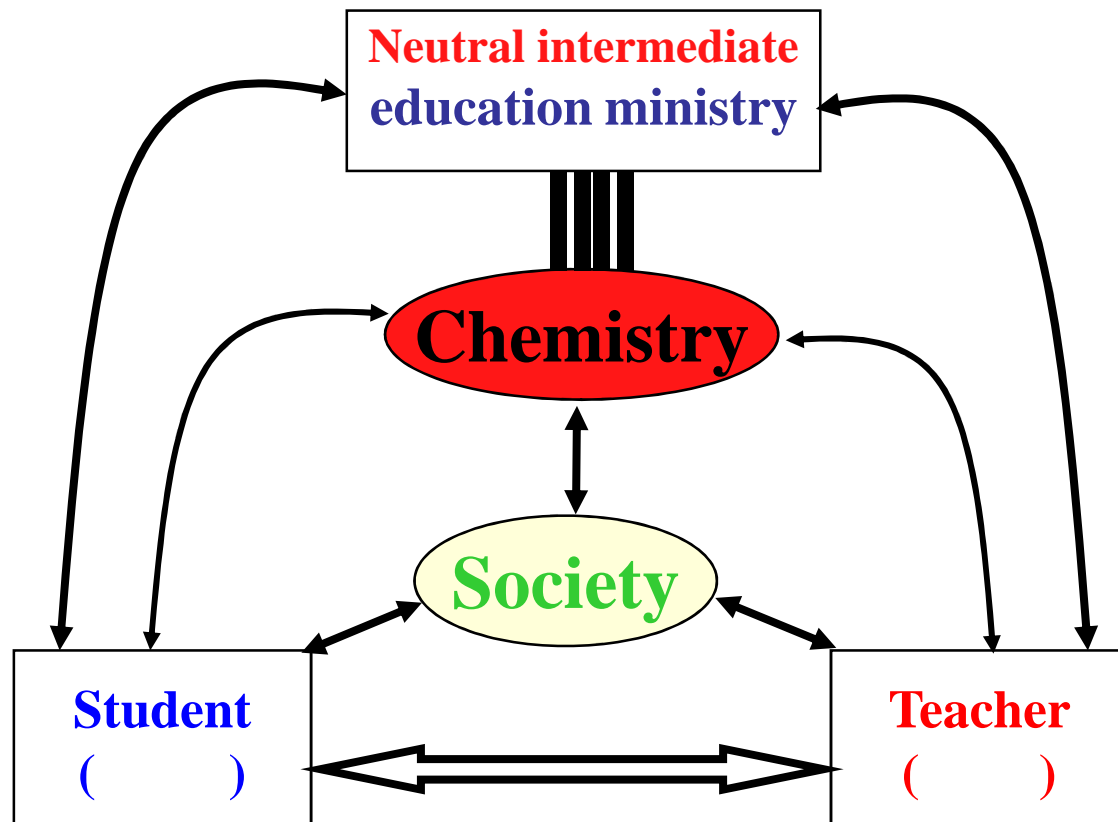
**S.D.3: Classification of Energy**



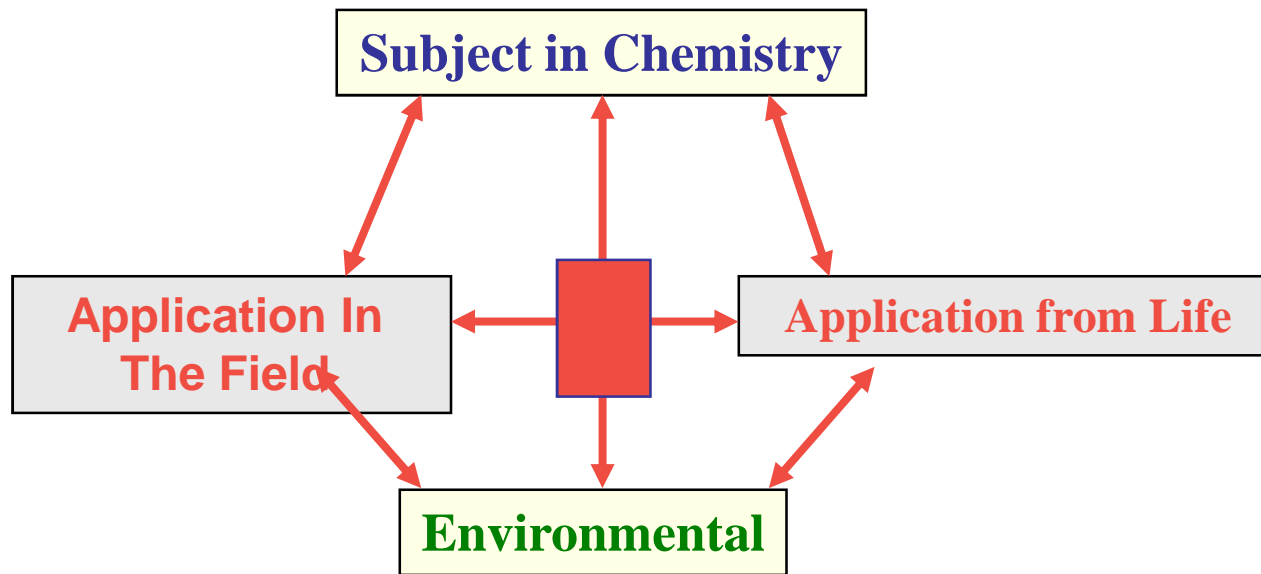
**S.D.4: Objective of learning and teaching**



**S.D.5: Relationship between Chemistry & Industry - Agriculture**

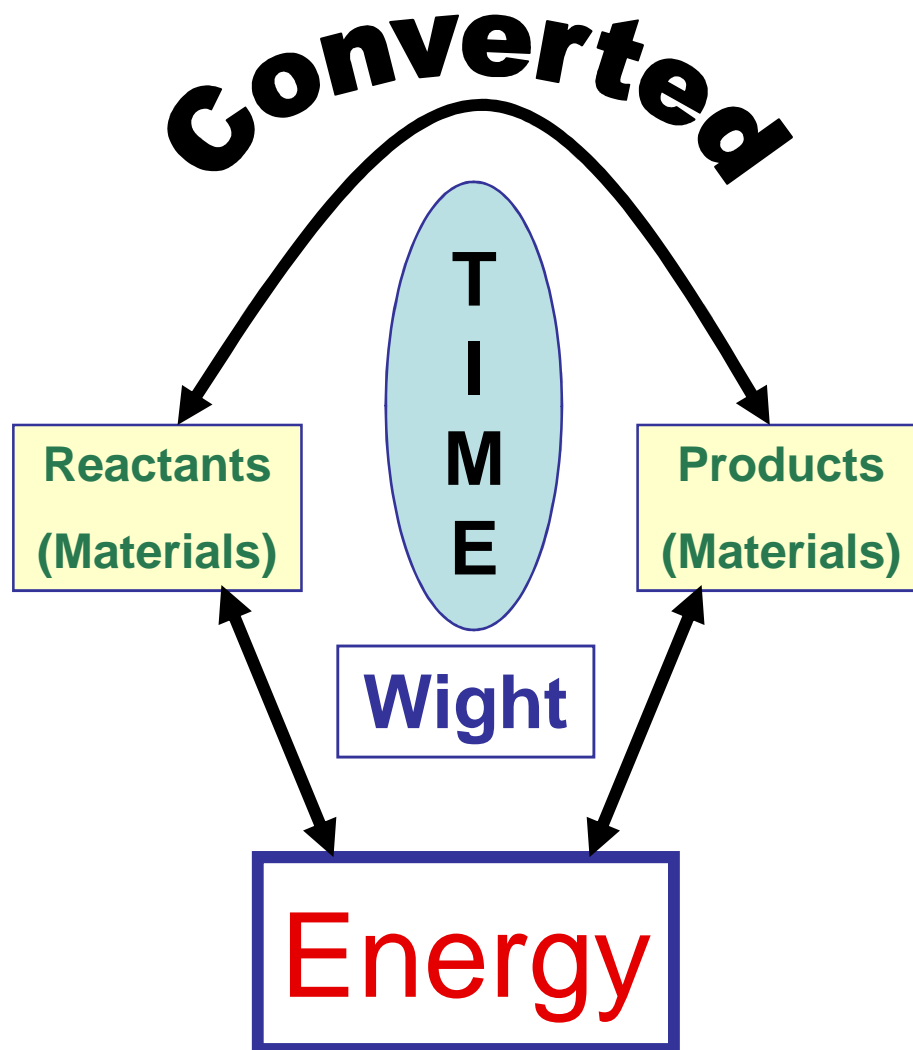


**S.D.6 : Relationship between Society & Education with teachers & Students**

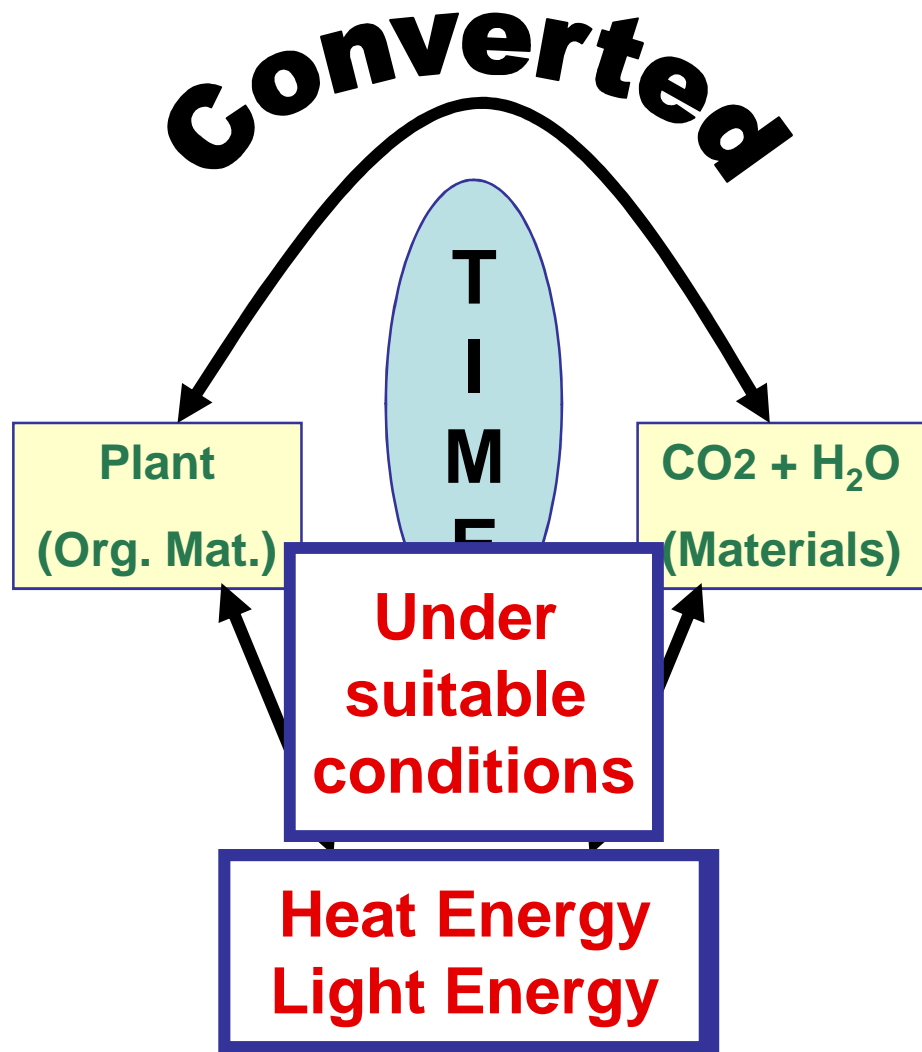


**S.D.7 : Strategy of teaching**





S.D.8: The Law of Conservation of Matter & Energy



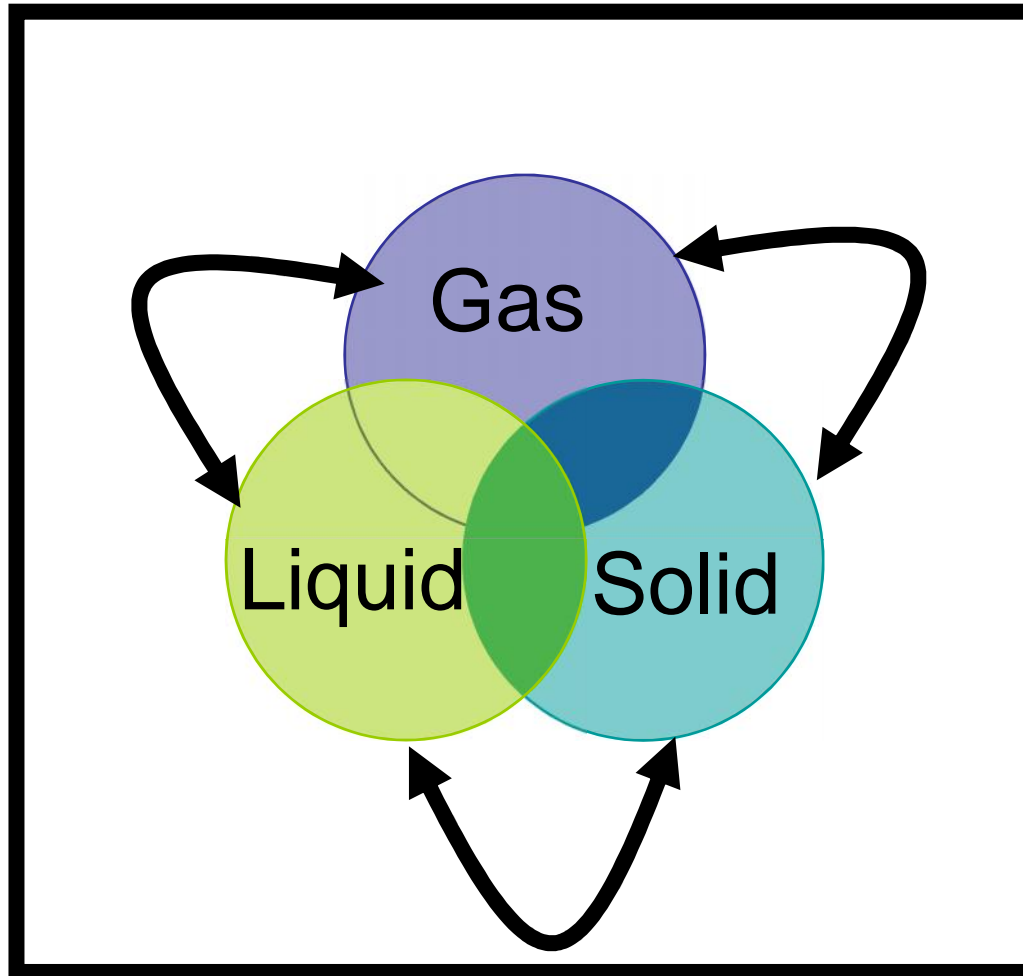
**S.D.9: Recycling of the Natural Materials**

**Materials**

**Water**

**Stomeic**

**universe**  
**Science**

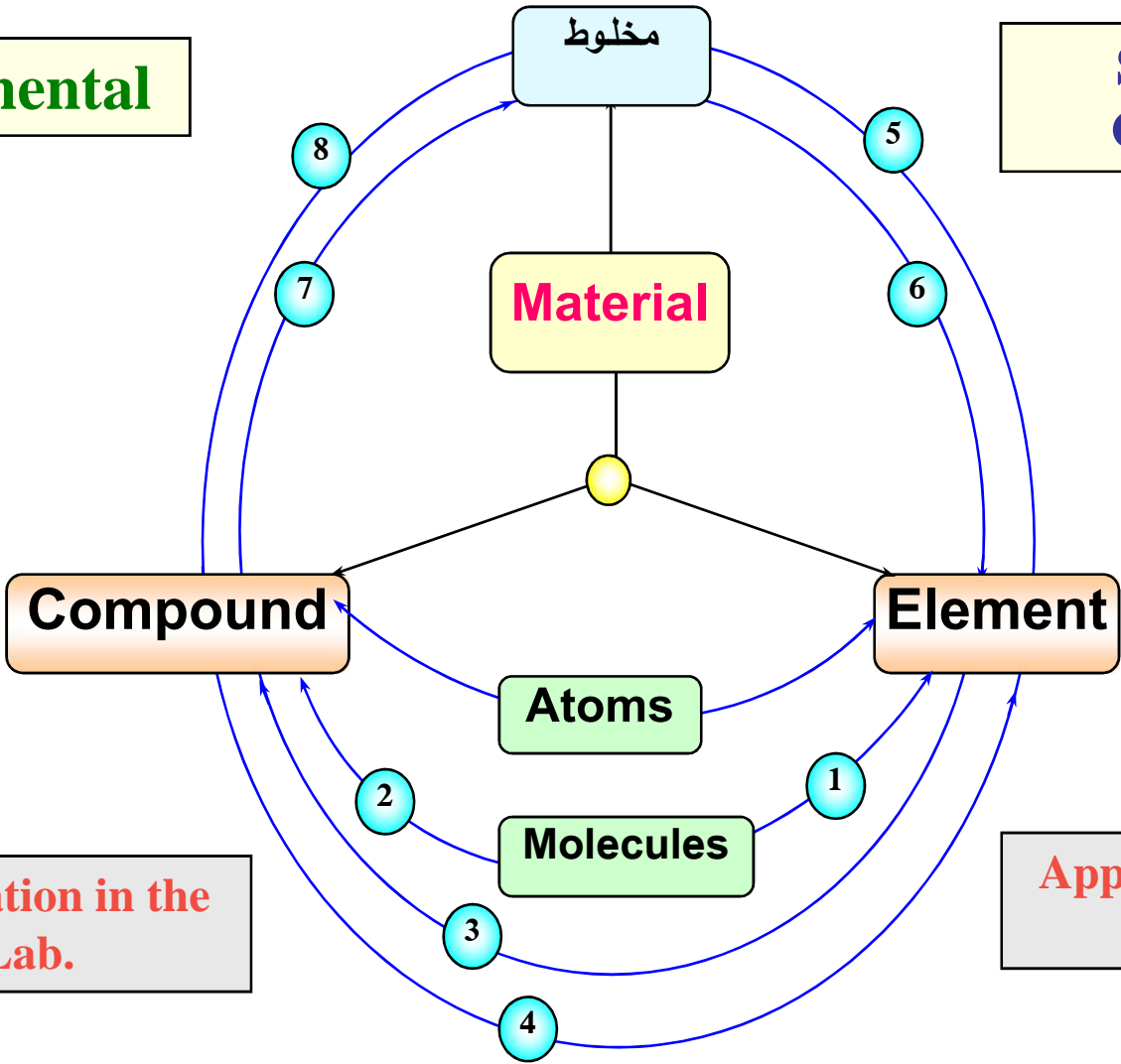


**Cell**  
**Earth**  
**Energy**

**S.D.10: States of Matter**

**Environmental**

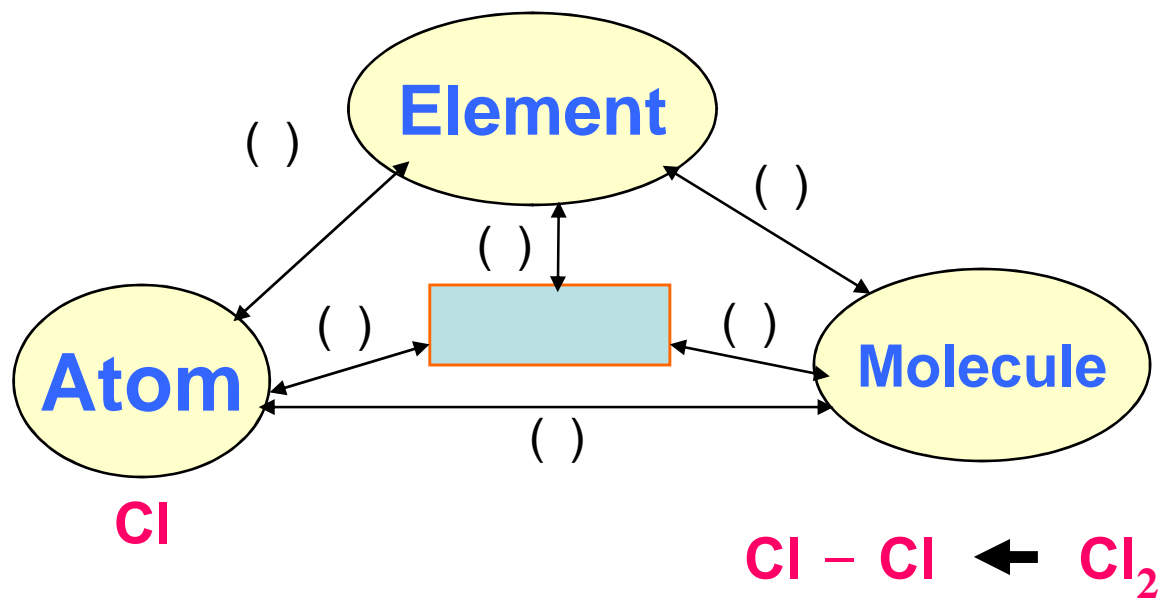
**Subject in Chemistry**

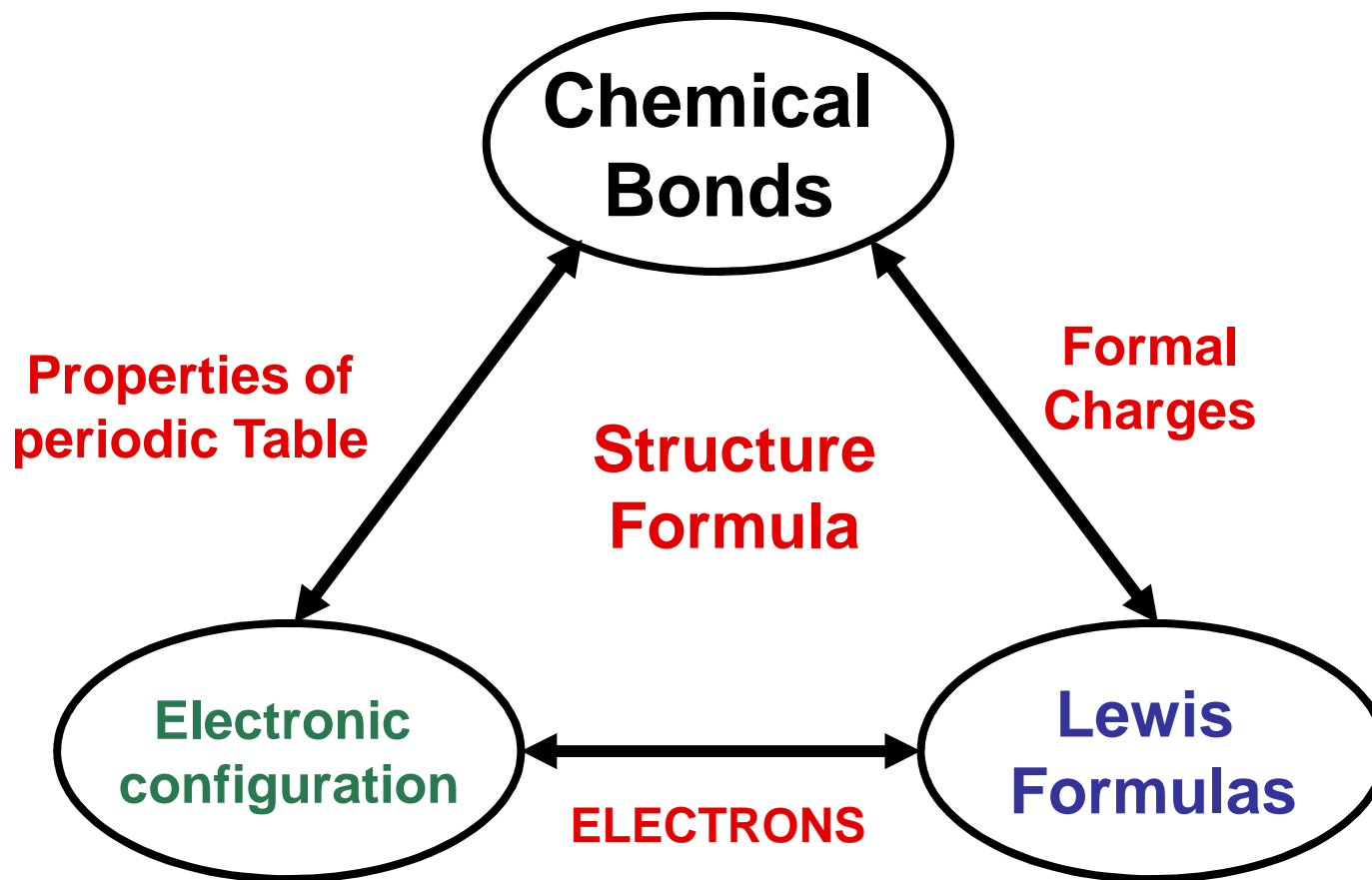


**Application in the Lab.**

**Application from the Life**

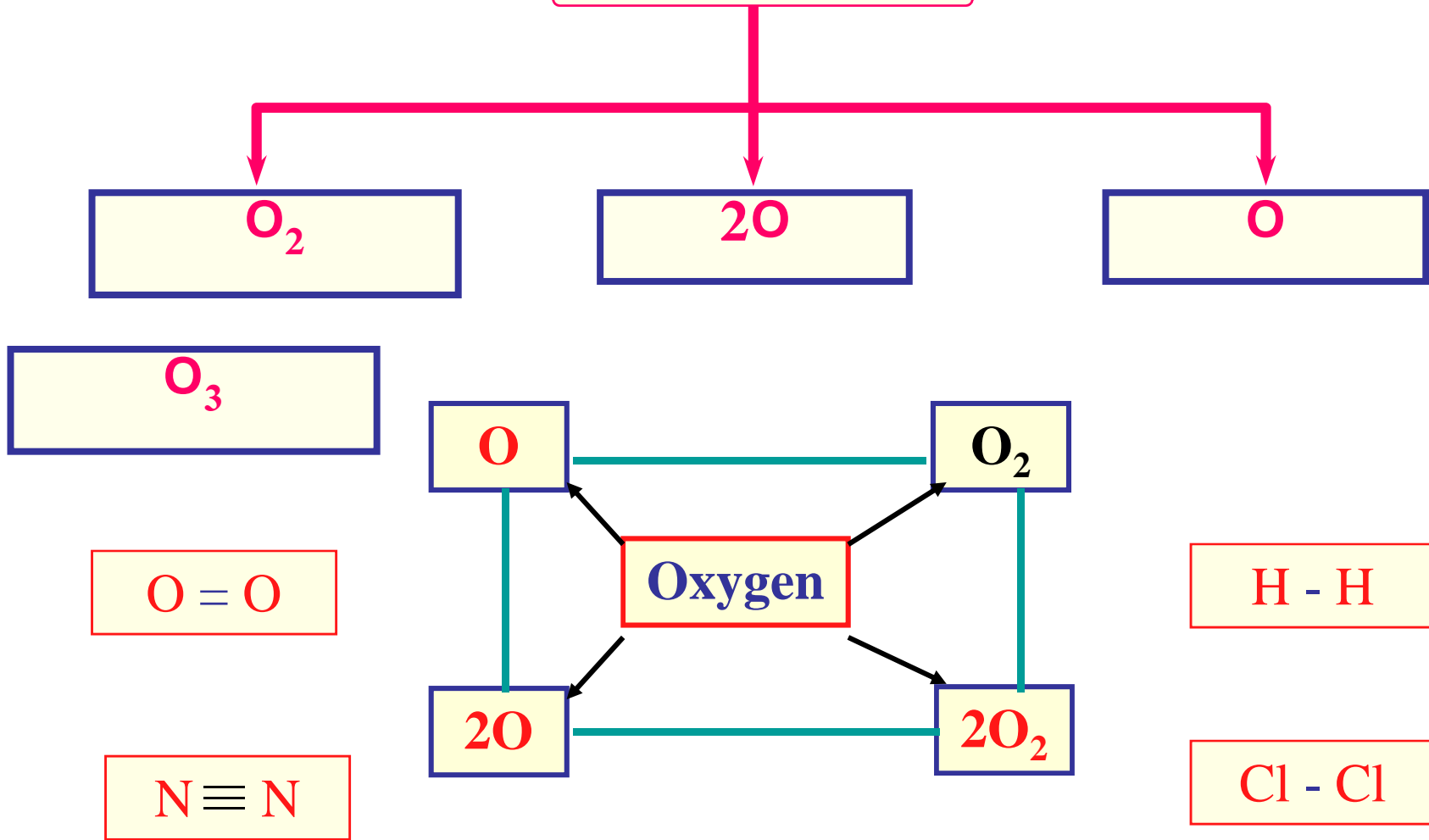
**S.D.11: Relationship between Materials & Mixture, Compd., Element, Atom, Molecule**

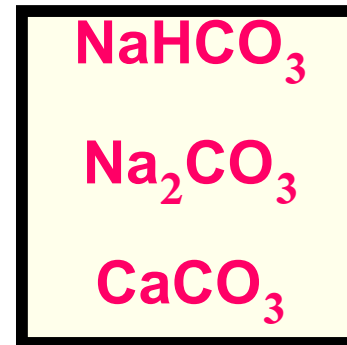
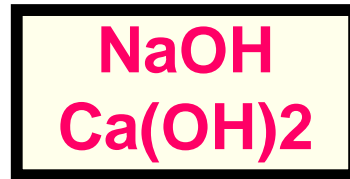
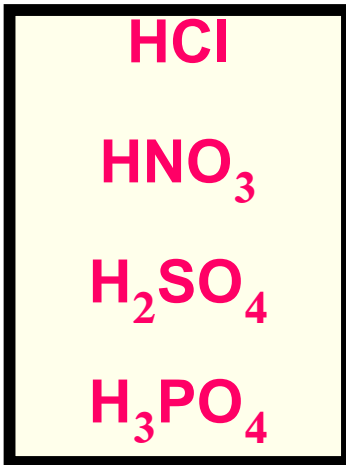
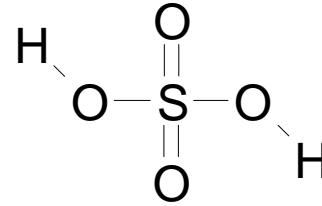
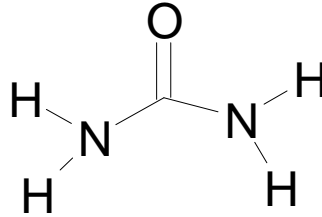
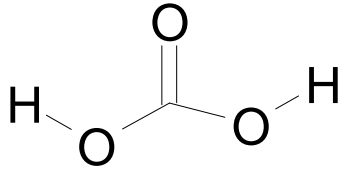
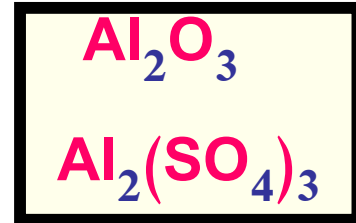
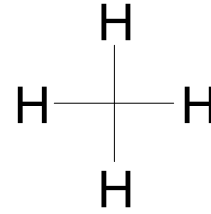
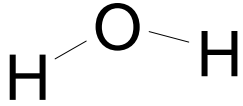




**S.D.21: Relationship between Structure Formula and Chemical Reactions**

# Oxygen







Molecular Wt.



Atomic No.

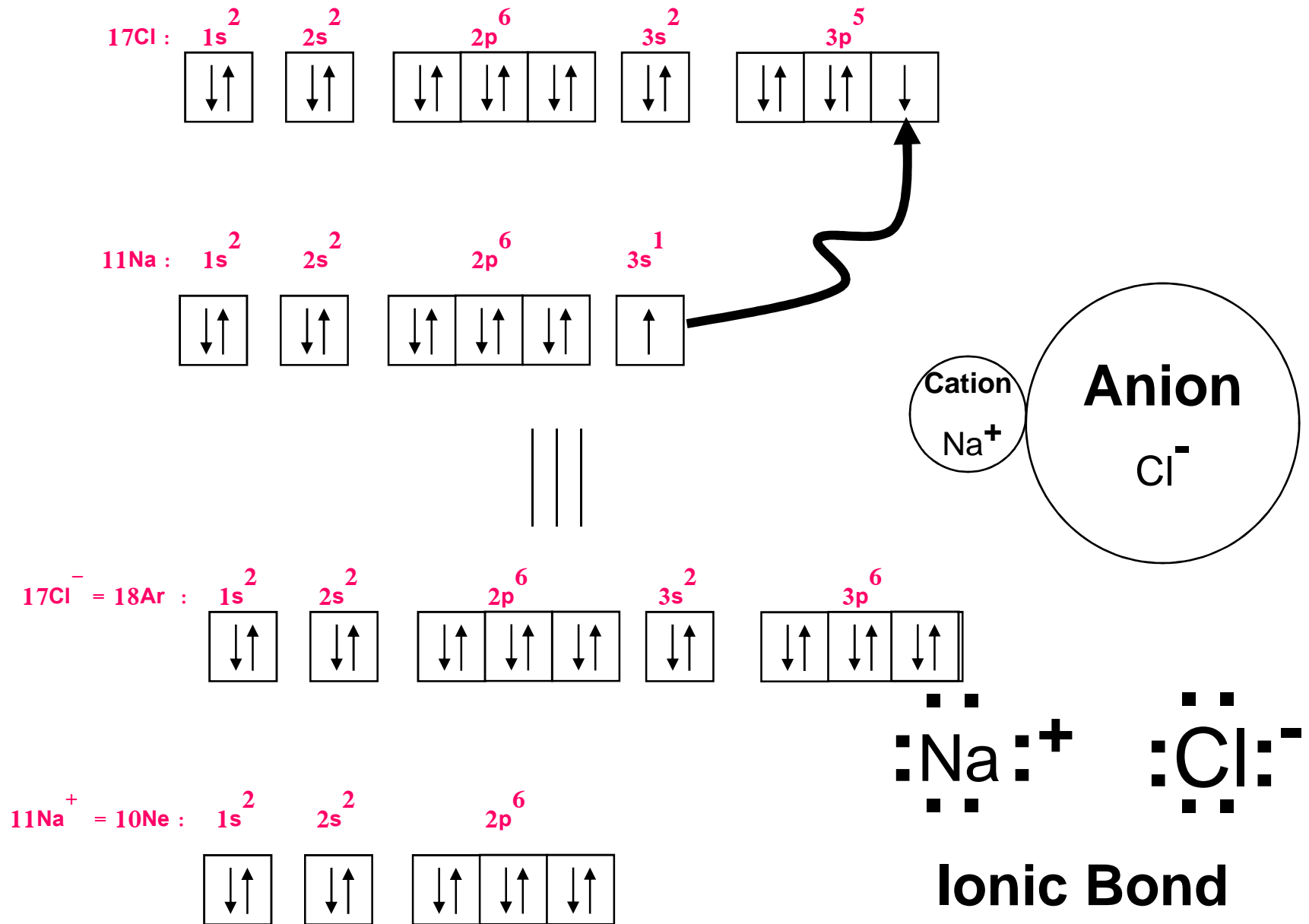
11

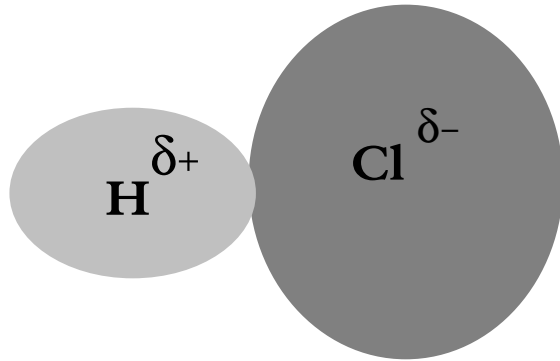
Molecular Wt.



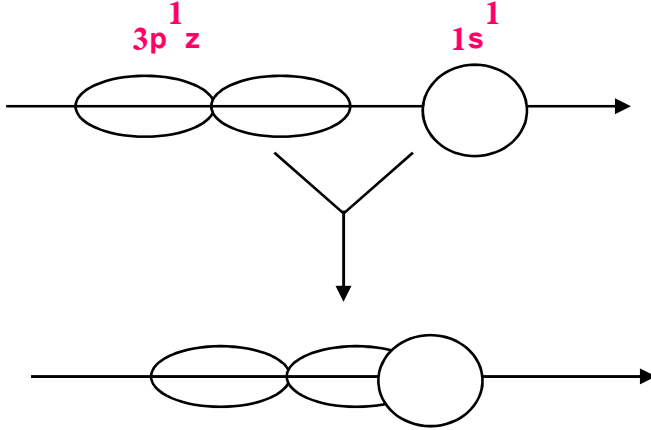
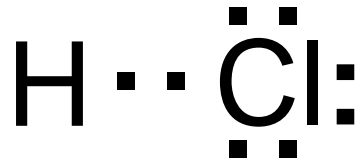
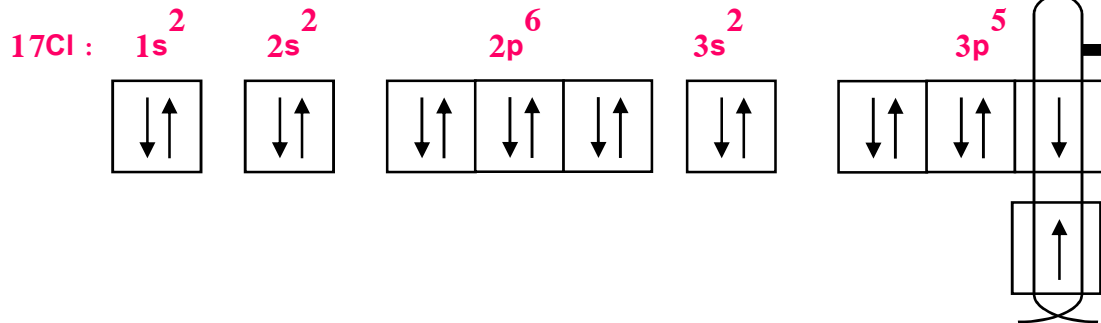
Atomic No.

17

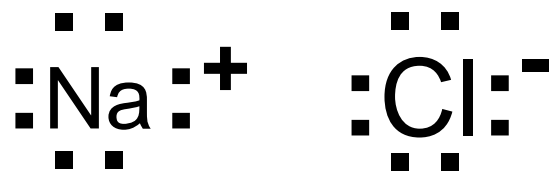




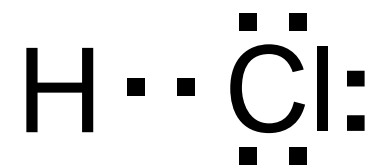
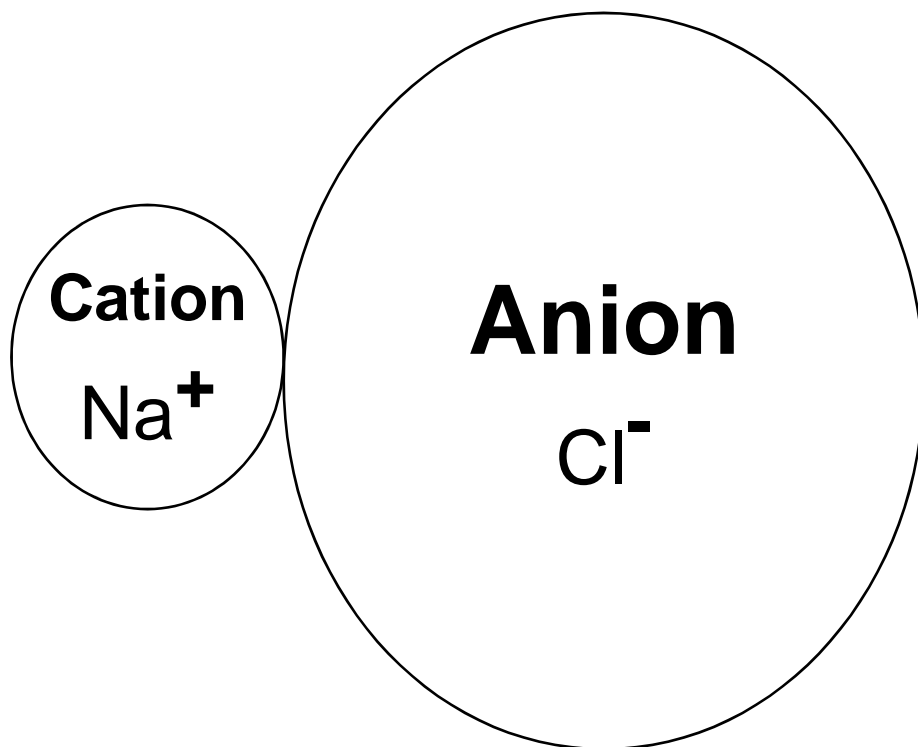
**Covelant Polar Bond**



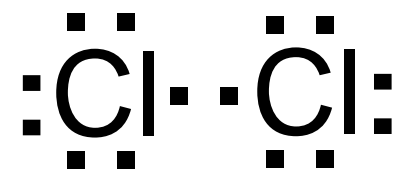
**Covelant Polar Bond**



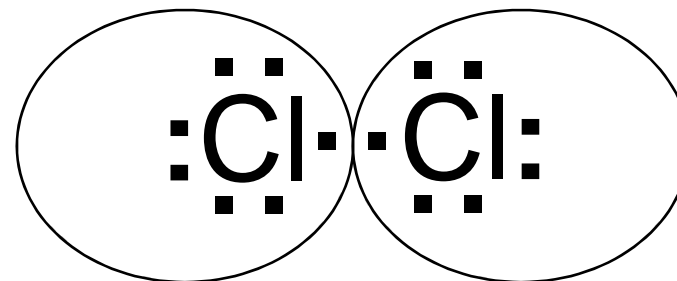
**Ionic Bond**



**Polar Covalent bond**



**Covalent bond**



## Polar Covalent bond H – Cl

H (Group I)

Low ionization  
Energy, first

Positive Electron affinity  
form Cation

Low electronegativity

Big Atomic Radii  
And small Cation Radii

Cl (group VII)

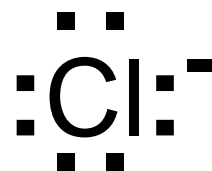
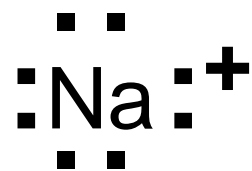
High ionization  
Energy, first

Negative Electron  
affinity form Anion

High electronegativity

Small Atomic Radii  
and Big Anion Radii

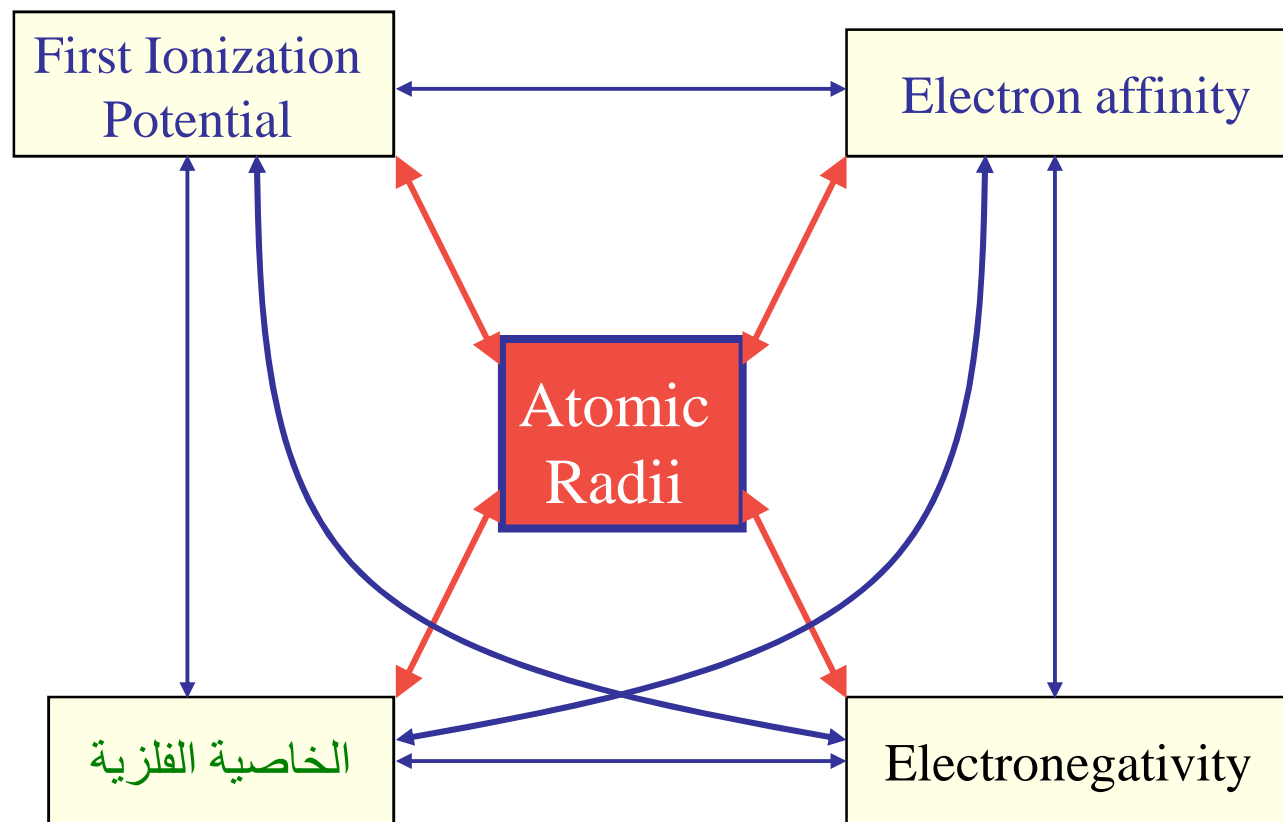
**S.D.21: Relationship between the kind of bonds and periodic properties**



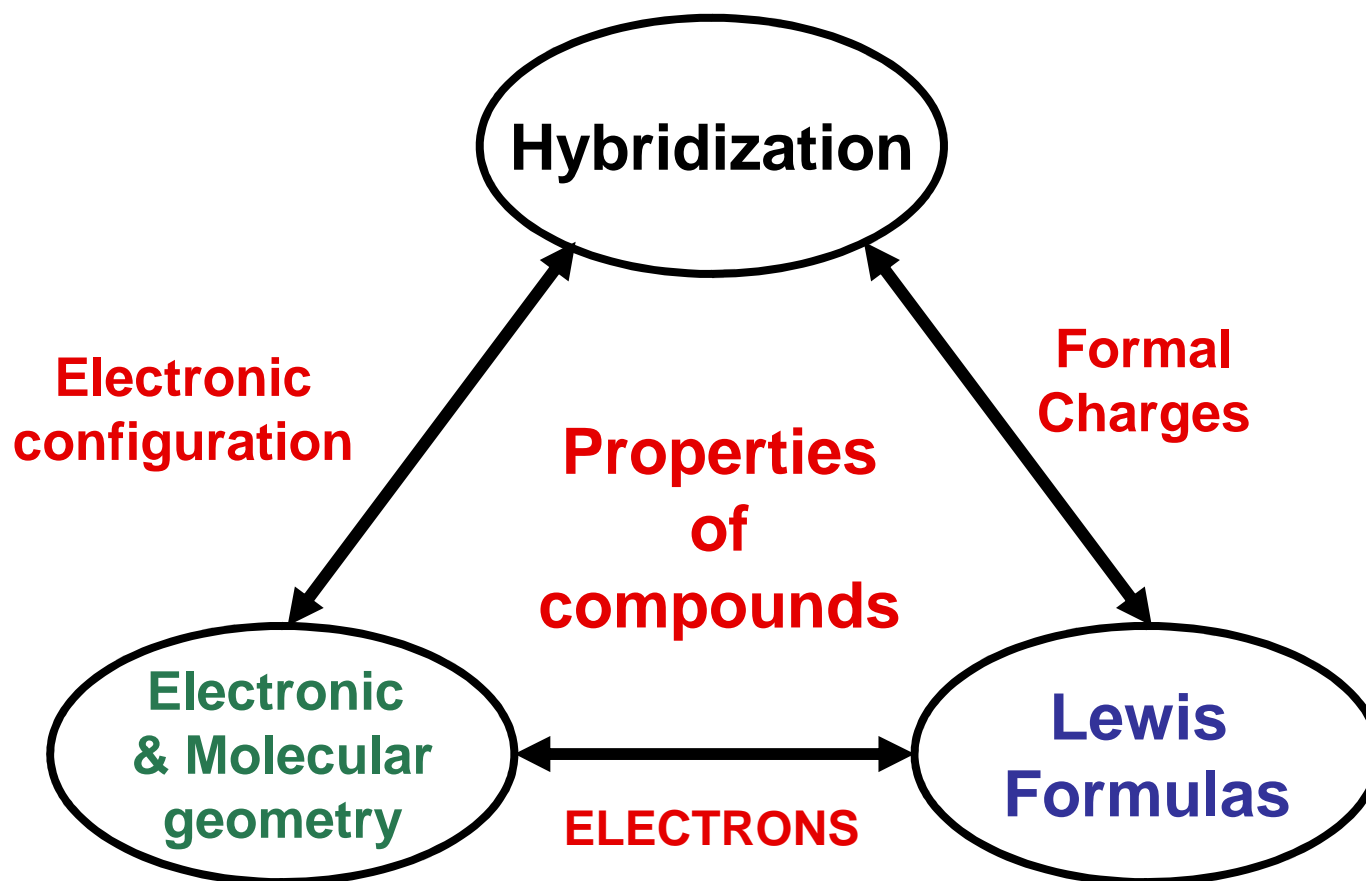
## Ionic Bond

	17Cl	11Na	الخواص
	VII	I	المجموعة
	٣	٣	الدورة
	$1s^2 2s^2 2p^6 3s^2 3p^5$	$1s^2 2s^2 2p^6 3s^1$	التوزيع الإلكتروني
	Big	Small	الحجم
	Big	Small	جهد التأين الأول
	High	Law	السالبية الكهربية
	Big, Form Anion	Small, form Cation	الميل (الألفة) الإلكترونية
	Nonmetal	Metal	الفلزية والتوصيل الكهربي

## Is Na Reacts with Ca ? Why?

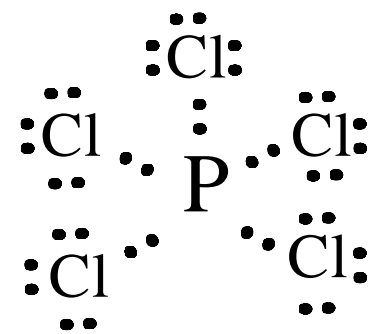
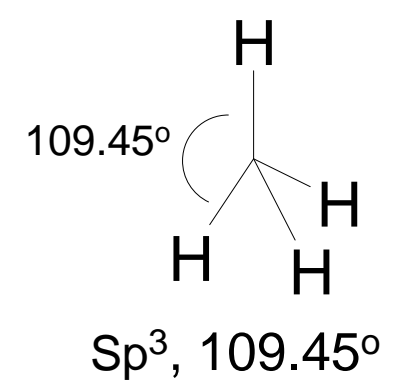
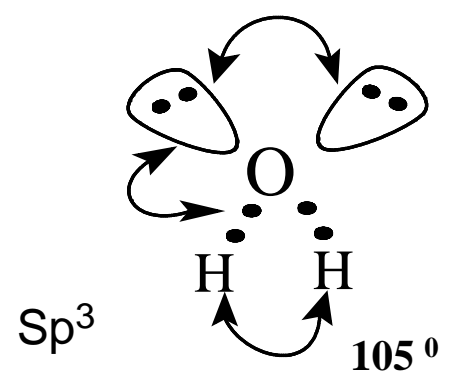
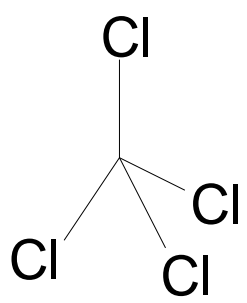
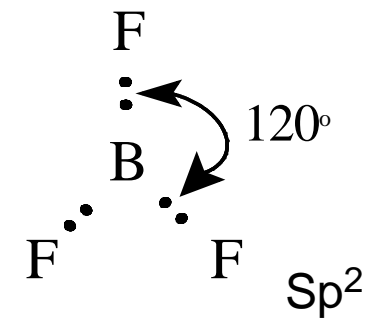
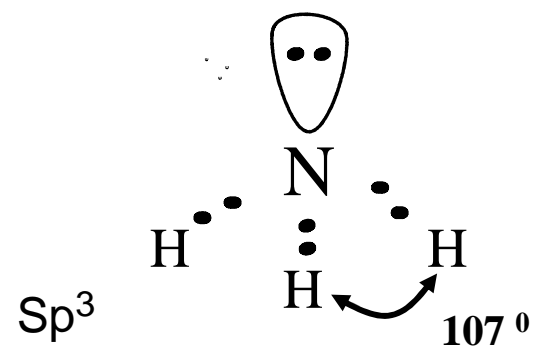
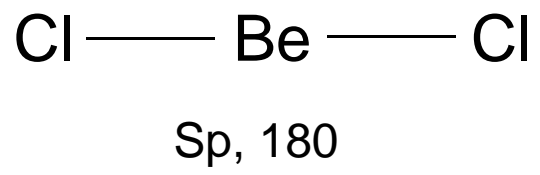


**S.D.22: Properties of Periodic Table**

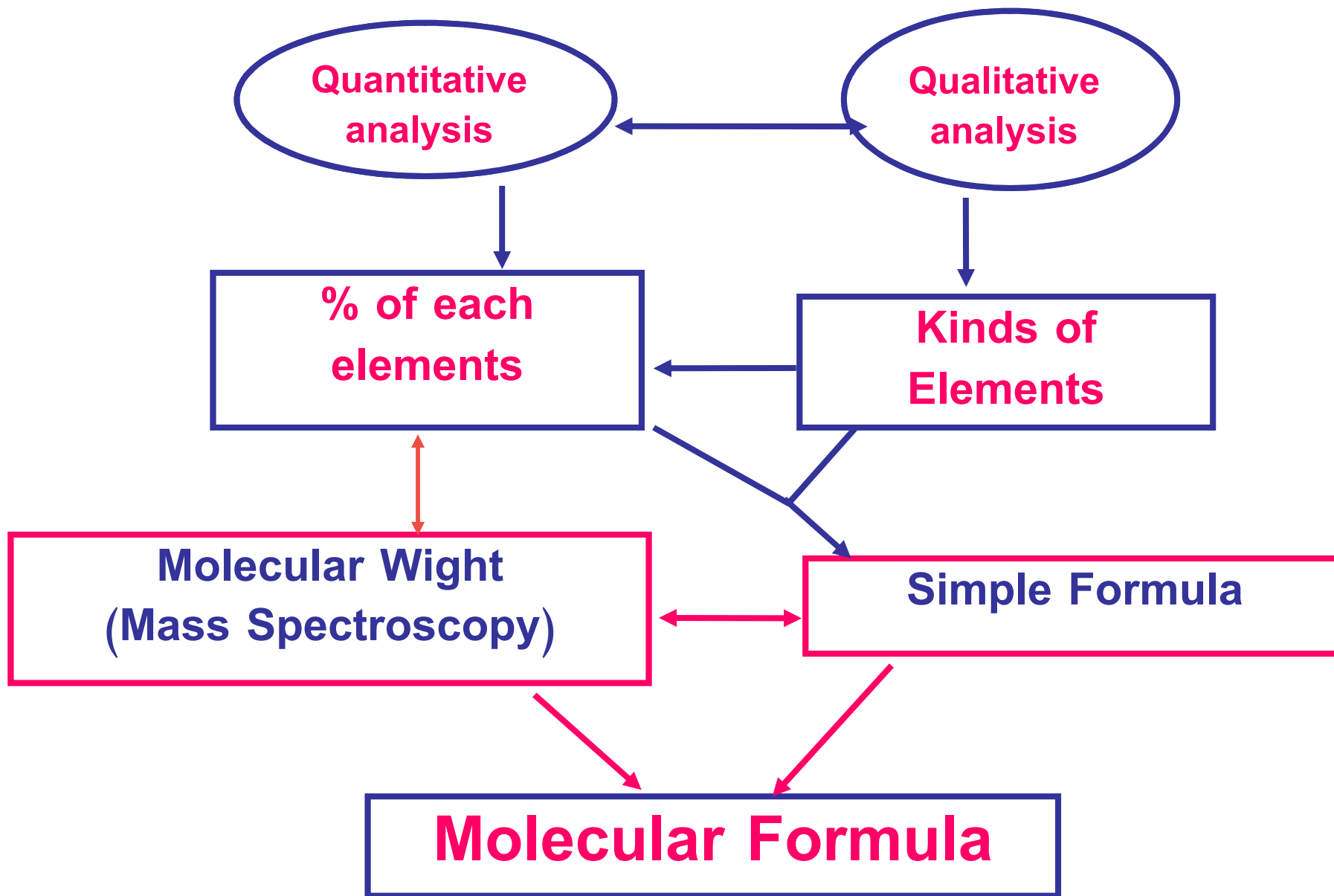


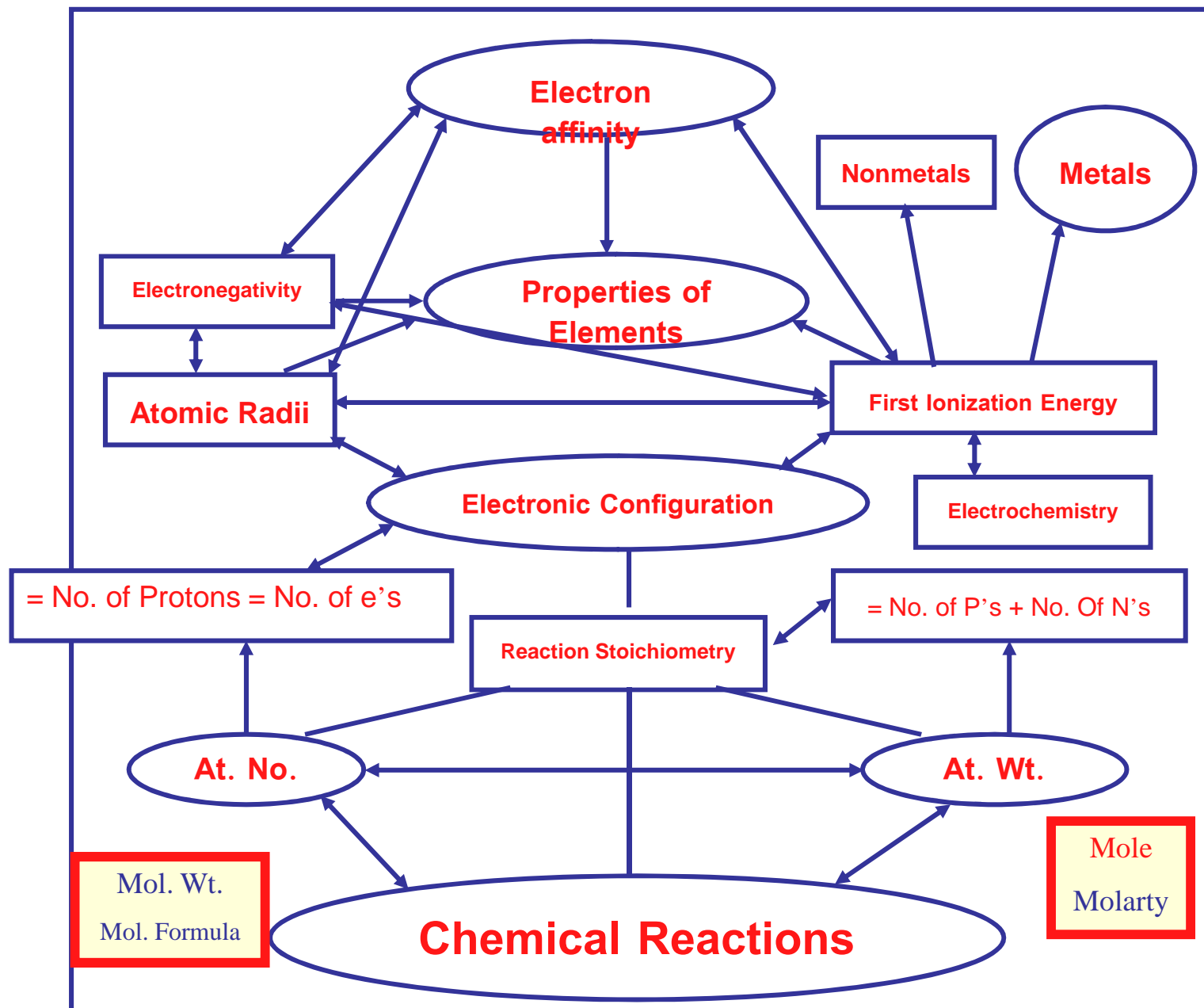
**S.D.21: Relationship between Structure Formula and Chemical Reactions**

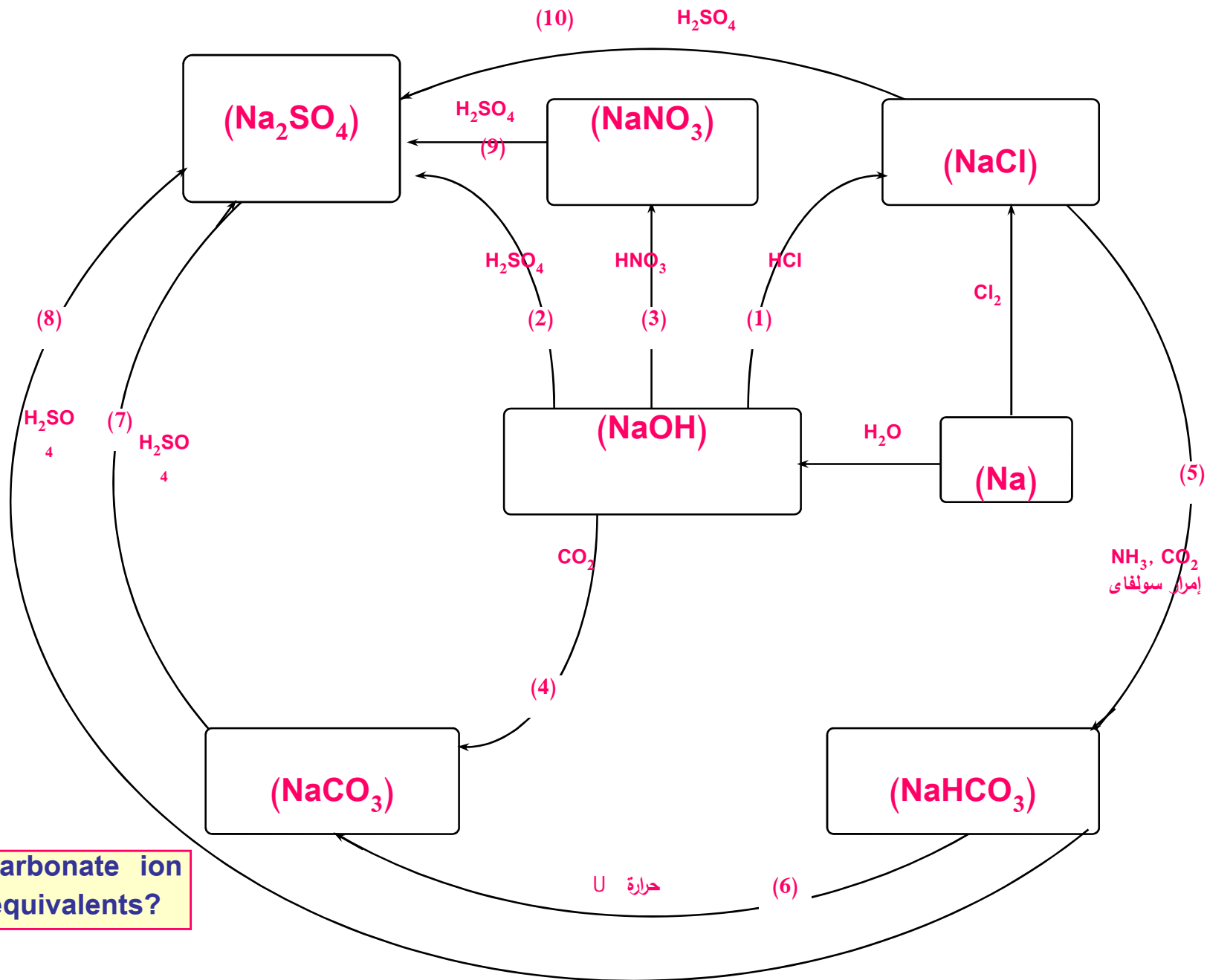




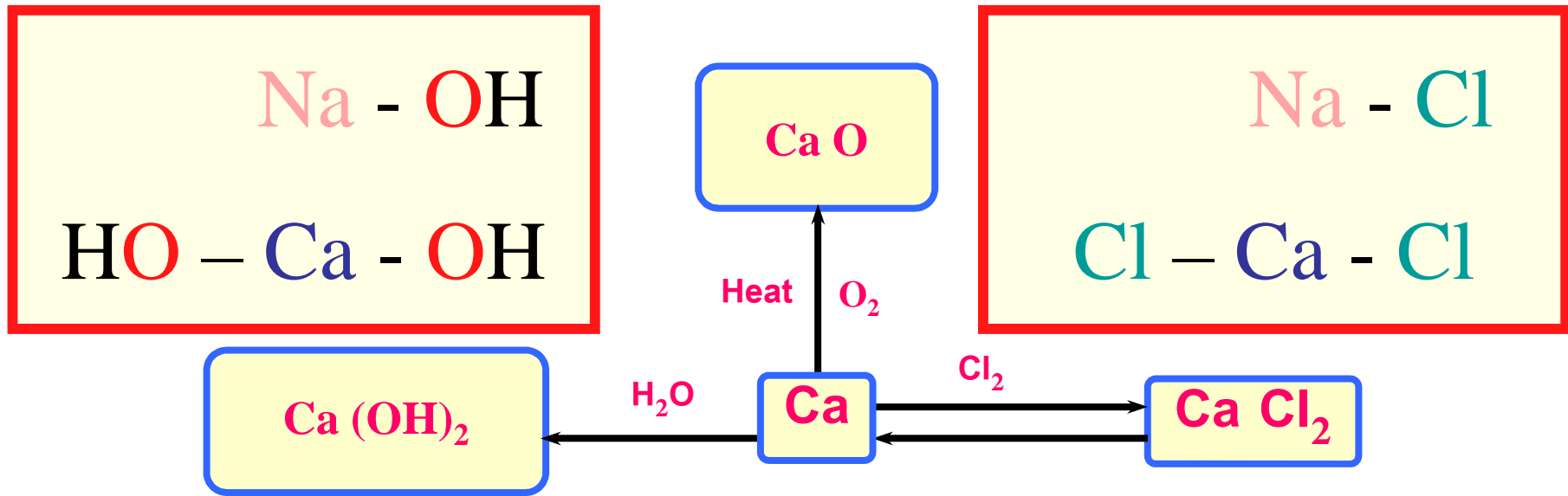
# VSEPR Theory





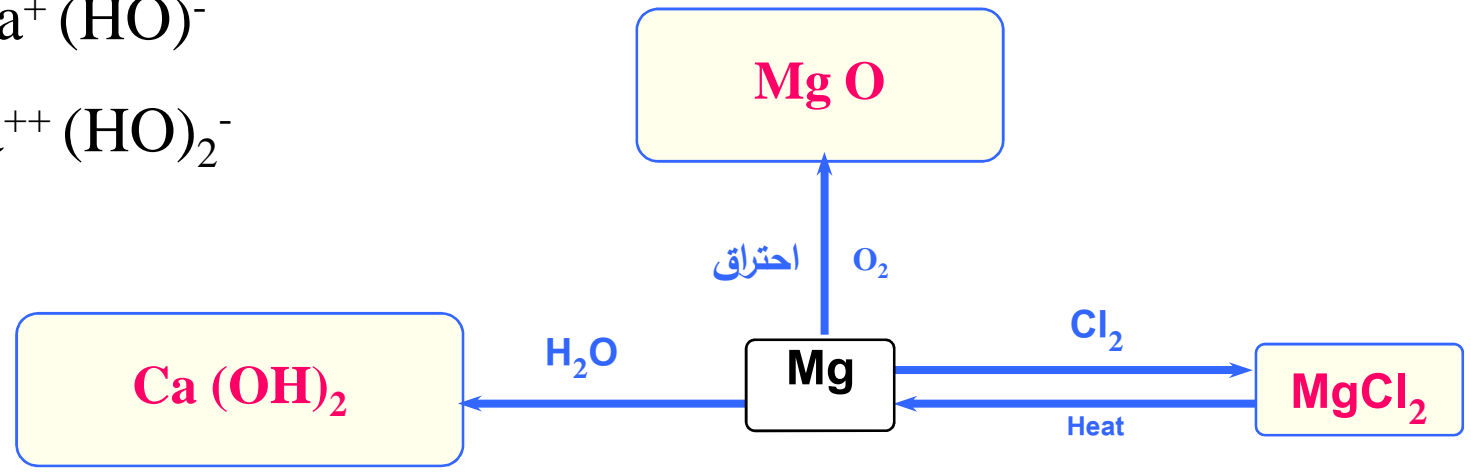


Why the Carbonate ion second equivalents?

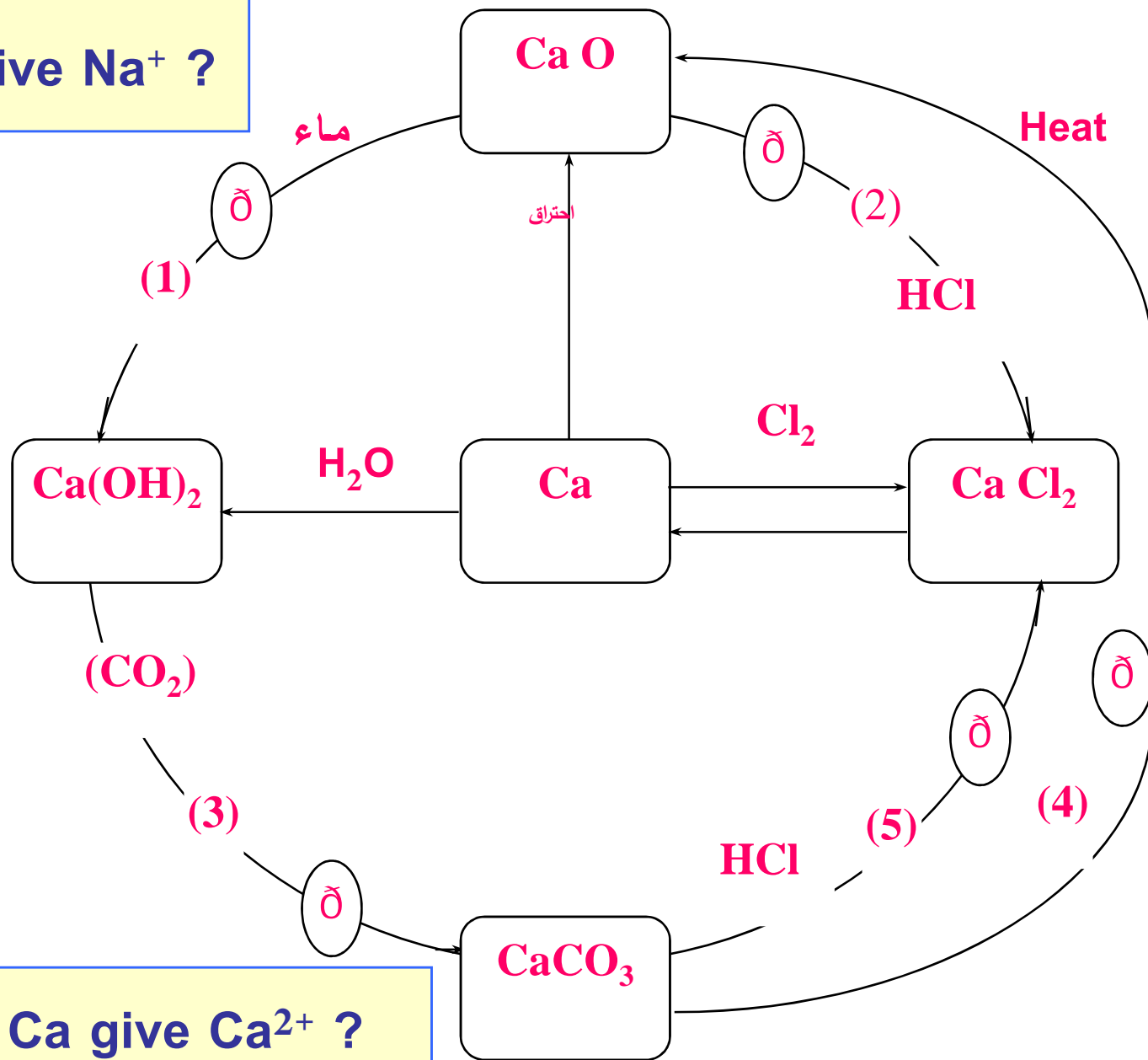


Na<sup>+</sup> (HO)<sup>-</sup>

Ca<sup>++</sup> (HO)<sub>2</sub><sup>-</sup>



Why Na give Na<sup>+</sup> ?



Why Ca give Ca<sup>2+</sup> ?

Write the electronic configuration of O .

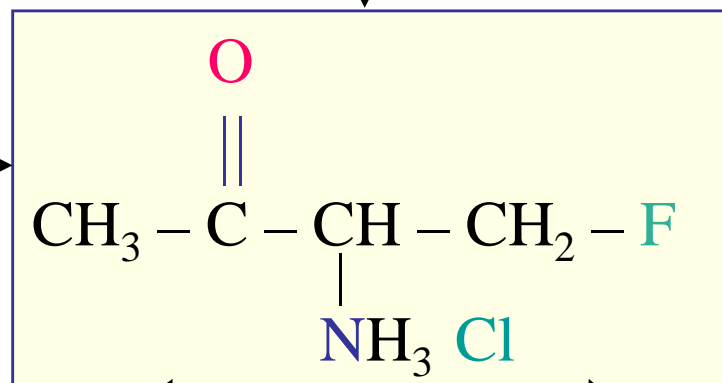
carbon

Describe the Quantum No's. of the last electron in the chlorine?

Nitrogen

Hydrogen

Explain the periodic properties of the elements in this compound?



Chemical bonds

Hybridization

Stoichiometry

Mention to the acid and base centers ?

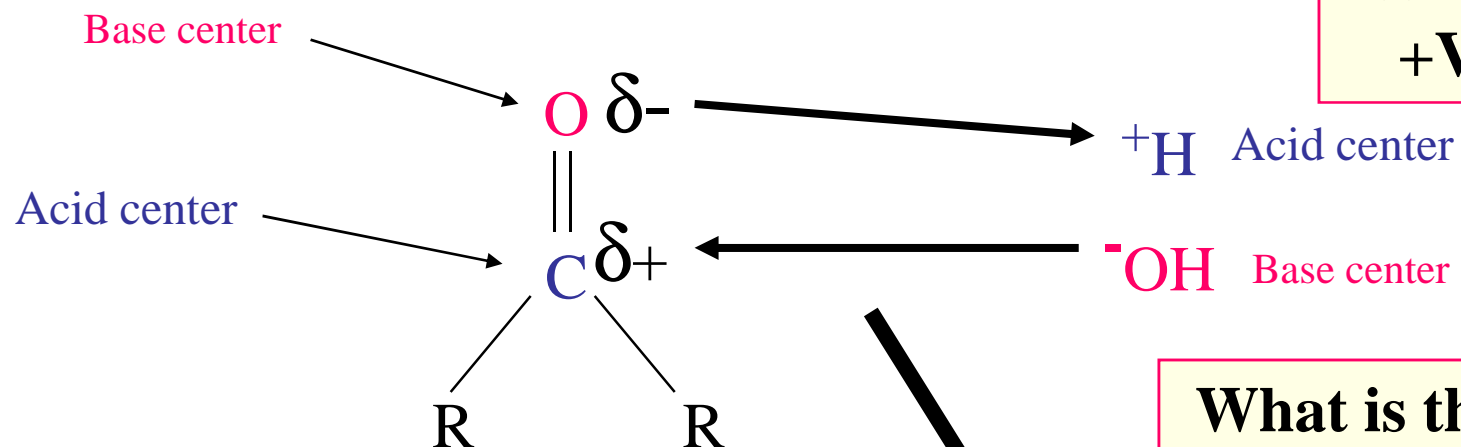
Halogen

Oxygen

Why the H & X connected by one sigel bond but the O conneted by two sigel bonds or bouble bonds and Carbon by four bonds and N by three bonds????

Molecular Geometry

# Nucleophilic substitution reaction on the carbonyl carbon

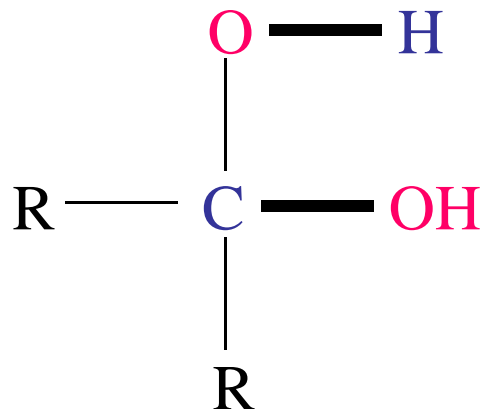


Why acid have +Ve charge?

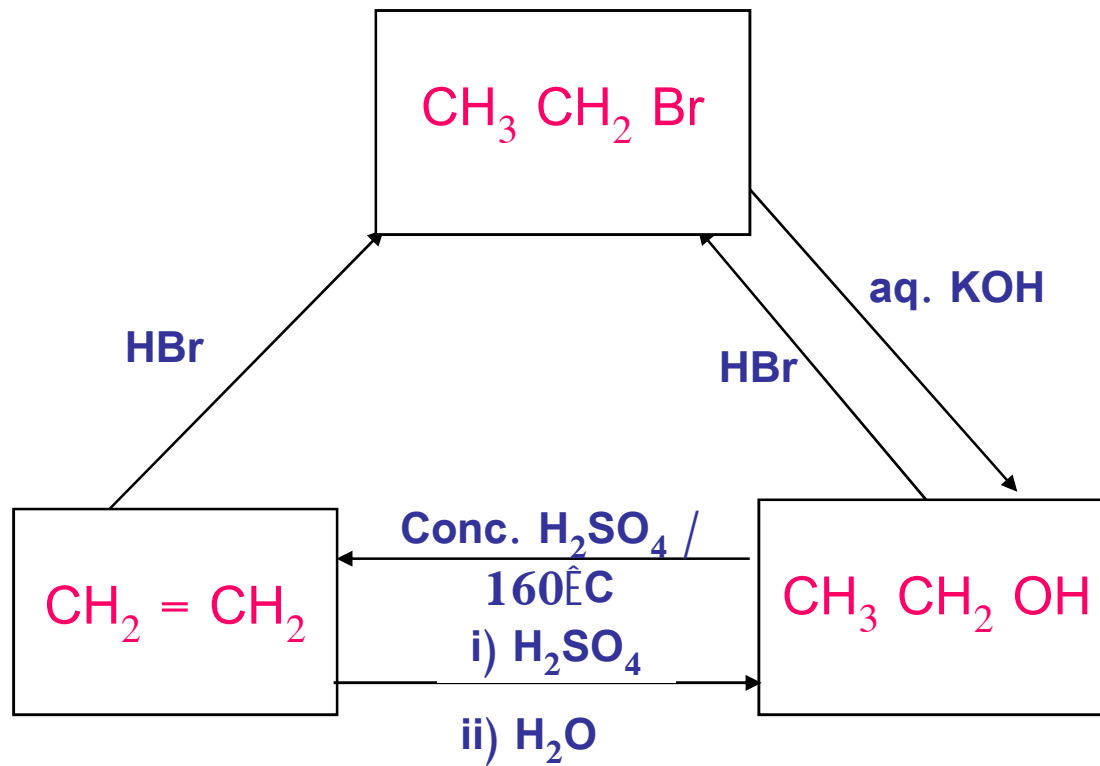
What is the hybrid of the center Carbon?

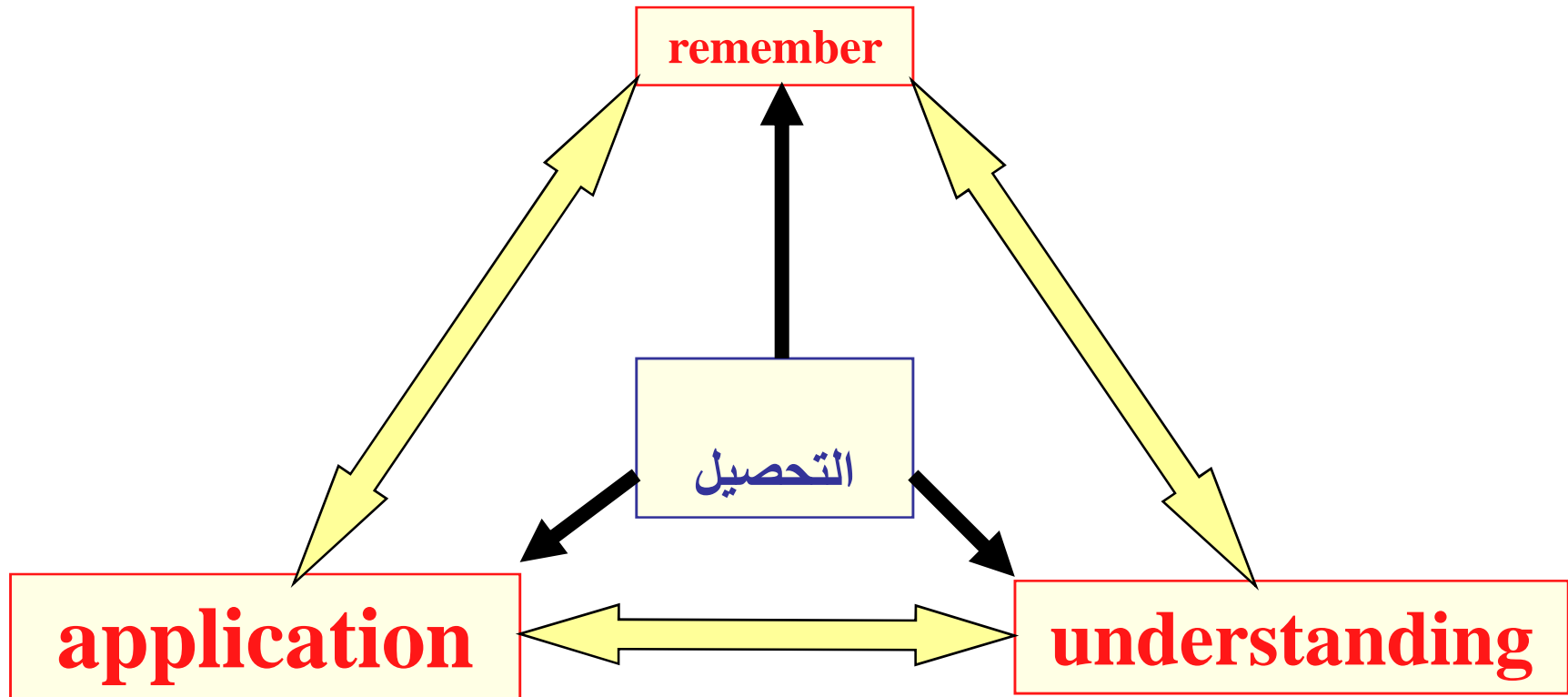
What is the names of the bonds in the reactant and product?

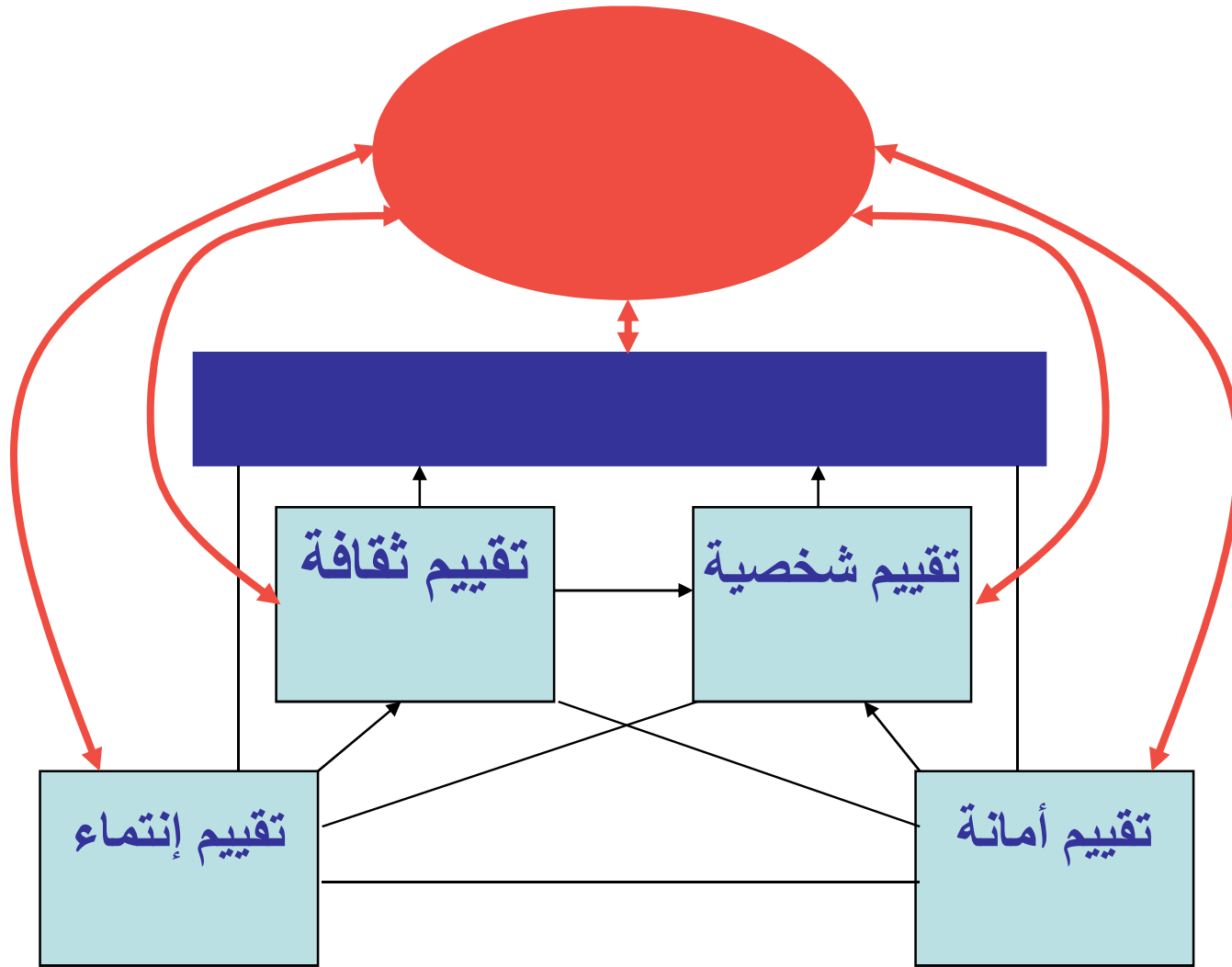
What is the geometry of the reactant and products ?











منظومة معايير تقييم الطالب

