

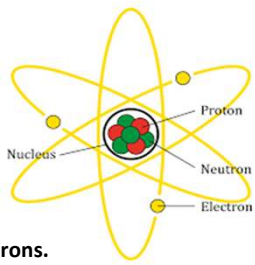
**LESSON 2**

**STUDY OUTLINE OF CHEMISTRY**

**Vocabulary**

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**Atom**  
(n)  
/'æʃ.əm/



The smallest unit of any chemical element, consisting of a positive nucleus surrounded by negative electrons. Atoms can combine to form a molecule.

→ **Atomic (adj)**

- Nguyên tố, nguyên tử

**Metabolic (adj)**  
/meʃ.ə'bi:t.lɪk/

- relating to metabolism (= the chemical processes within the body required for life)

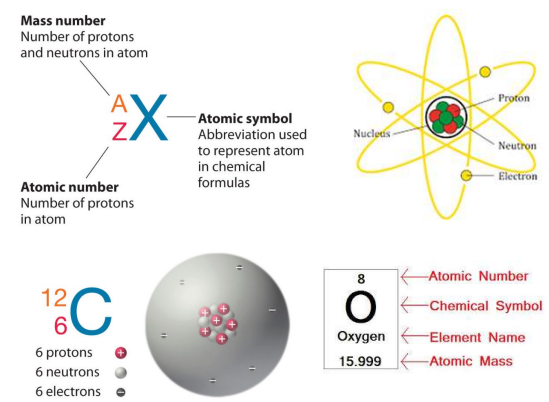
→ **Metabolize (v)** /mə'tæb.əl.aɪz/  
→ **Metabolism (n)** /mə'tæb.əl.i.zəm/

- trao đổi chất

**Mass number**  
Number of protons and neutrons in atom

**Atomic symbol**  
Abbreviation used to represent atom in chemical formulas

**Atomic number**  
Number of protons in atom



**Atomic Number**  
**Chemical Symbol**  
**Element Name**  
**Atomic Mass**

8  
O  
Oxygen  
15.999

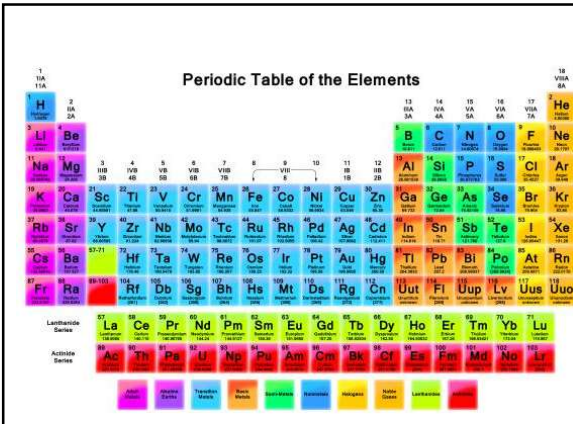
**Nutrient (n)**  
/'nu:tri.ənt/

any substance that plants or animals need in order to live and grow

→ **Nutrition (n)**  
→ **Nutritionist (n)**  
→ **Nutritional (adj)**

- Dinh dưỡng

**Periodic Table of the Elements**



The periodic table shows elements organized by atomic number and chemical properties. Groups are color-coded: Alkali Metals (pink), Alkaline Earth Metals (light blue), Transition Metals (blue), Main Group Metals (orange), Nonmetals (green), Halogens (yellow), Noble Gases (light green), and Lanthanides/Actinides (grey).

## Isotope (n)

/ˈaɪ.səˌtoʊp/

a form of an atom which has a different atomic mass from other forms of the same atom but the same chemical structure

→ radioactive isotope: chất đồng vị phóng xạ

- chất đồng vị

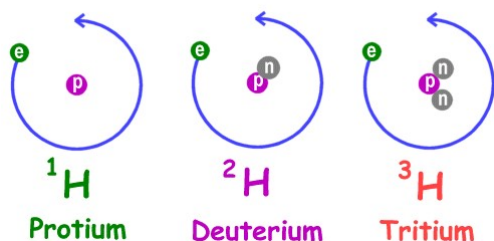
## Valence (v)

/ˈveɪ.ləns/

- the ability of an atom to combine with other atoms, measured by the number of electrons it will lose, add, or share

- hoá trị

## Three Isotopes of Hydrogen



Valence vs Core Electrons		
More Information Online: <a href="http://WWW.DIFFERENCEBETWEEN.COM">WWW.DIFFERENCEBETWEEN.COM</a>		
	Valence Electrons	Core Electrons
<b>DEFINITION</b>	Valence electrons are the electrons in an atom which participate in the chemical bond formation	Core electrons are the electrons other than valence electrons of the atom
<b>LOCATION IN ATOMS</b>	Resides at the outer most shells	Reside in inner shells
<b>ENERGY REQUIREMENT</b>	Energy required to remove valence electrons is comparatively low	Energy required to remove core electrons is very high
<b>EXAMPLE</b>	In a nitrogen atom, there are 5 valence electrons	In a nitrogen atom, there are 2 core electrons

## Configuration (n)

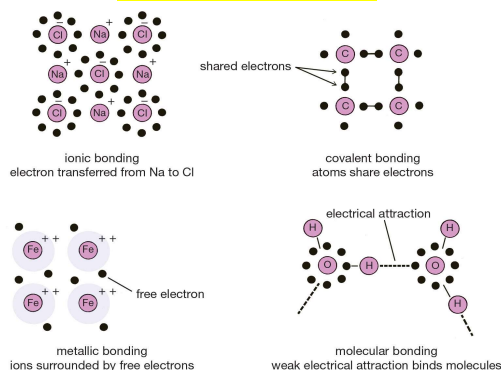
/kənˌfɪɡ.jəˈreɪ.jən/

the particular arrangement of the parts of something or of a group of things

→ configure (v)

- Cấu hình

## Chemical Bonds



## Chemical Bonds

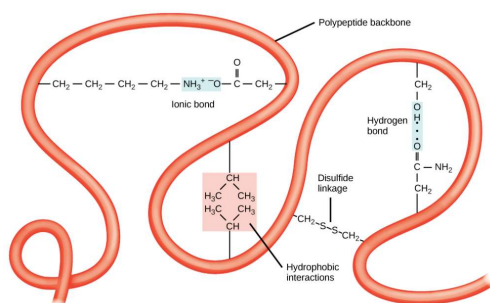
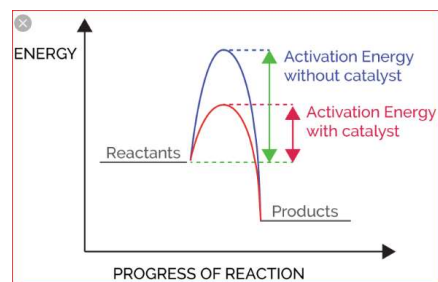
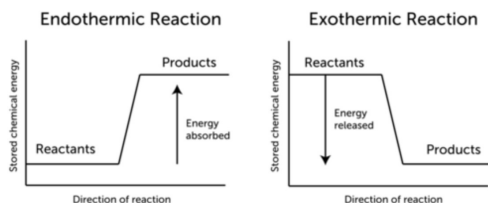


Image modified from OpenStax Biology.



## Energy of Chemical Reactions



- All chemical reactions involve energy.
- Energy is used to break bonds in reactants, and energy is released when new bonds form in products.
- Endothermic reactions absorb energy, and exothermic reactions release energy.

## Accelerate

(v)

/ək'sel.ə.ɪt/

- to happen or make something happen sooner or faster

Ex: They use special chemicals to accelerate the growth of crops.

→ = speed up

- Thúc đẩy

## Collide

(v)

/kə'laɪd/

(esp. of moving objects) to hit something violently

Ex: He went off the road to avoid colliding with another car.

→ collision (n) /kə'liʒ.ən/ = accident, crash

- va chạm với, đâm vào, đụng vào