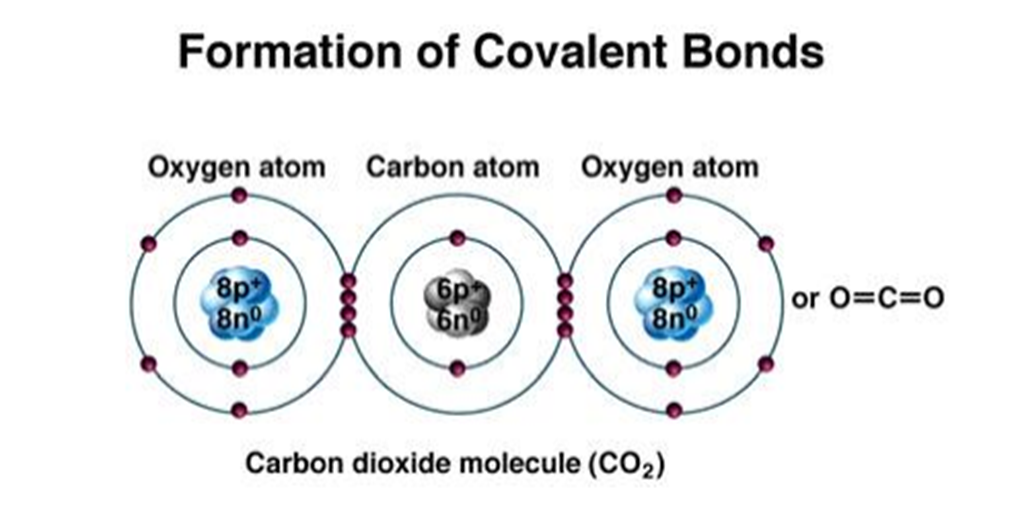
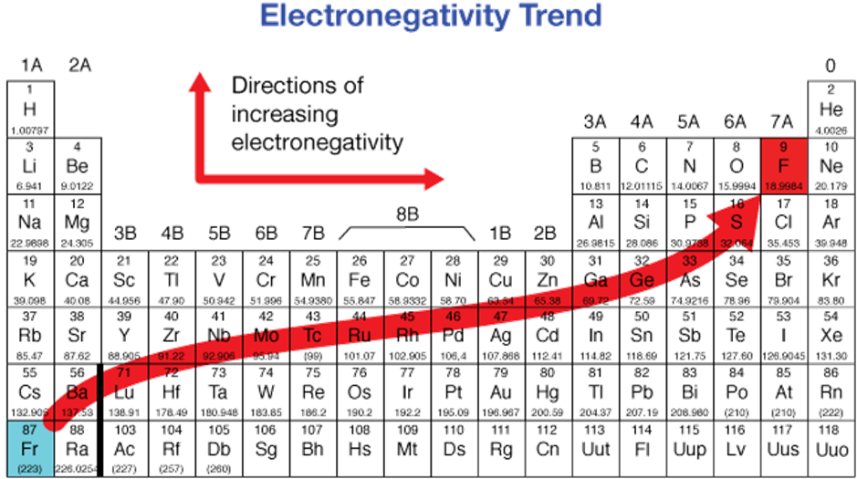
Name: Date: Block:

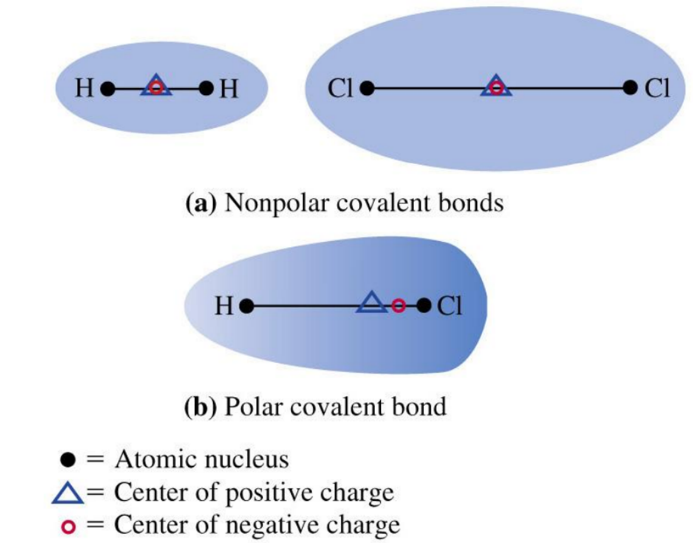
**Covalent Bonds:**

* ***Covalent bonds***  occur when atoms a pair of electrons.
* Occur between atoms whose outer shells are **NOT** full.
* Covalent bonds are strong chemical bonds, because the shared electrons behave as if they belong to each atom.

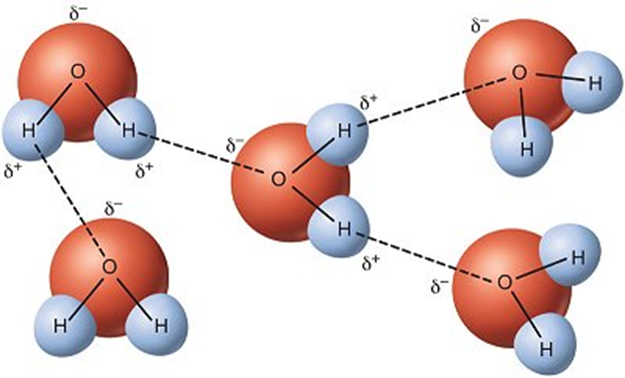


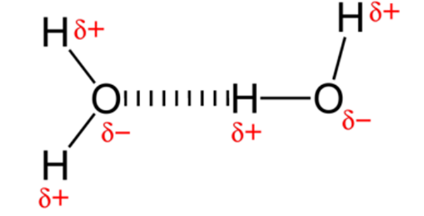
**Electrons are not always evenly shared between atoms…**

* Some atoms attract ***shared*** electrons more readily (easier) than do other atoms.
* The of an atom is the measure of its ability to attract electrons in a bond.



* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** the distribution of electrons around the nuclei creates polarity or a difference in electric charge across the molecule.
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** a strong bond is formed between two atoms with similar electronegativities and no polarity exists.

**Hydrogen Bonds**

* An important result of certain polar covalent bonds is the ability of one molecule to loosely associate with another molecule through a .
* This bond forms when a hydrogen atom from **one polar molecule** is attracted to an electronegative atom, in **another polar molecule**.

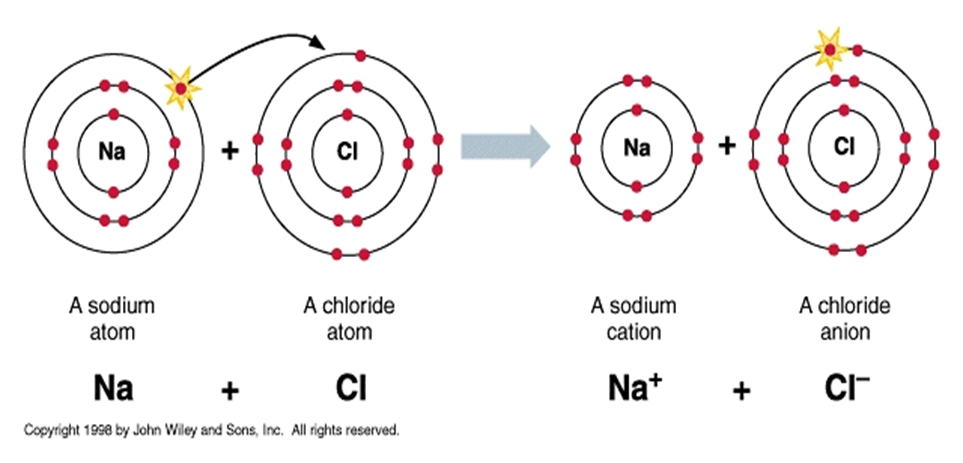
**Example**: is the attraction between two water molecules.

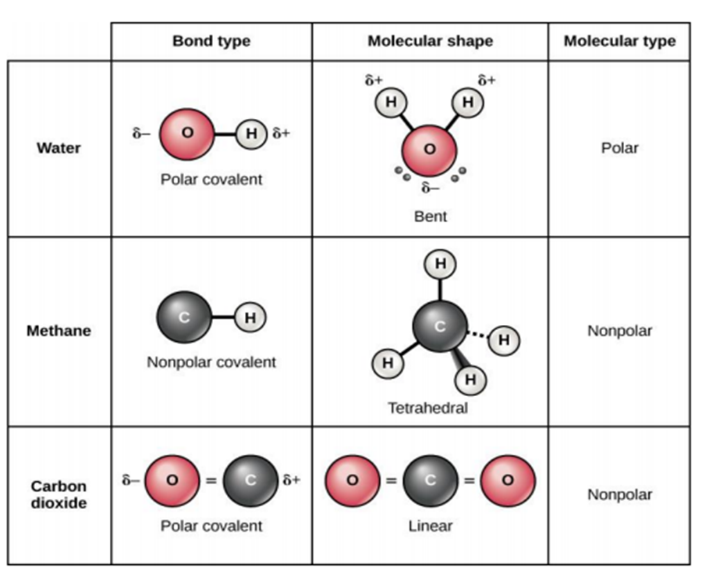
**Ionic Bonds**

Atoms are because they contain equal numbers of electrons and protons.

If an atom  **or** an electron it becomes charged (ion).

An forms when an ion with a **positive charge** is attracted to an ion with a **negative charge**.

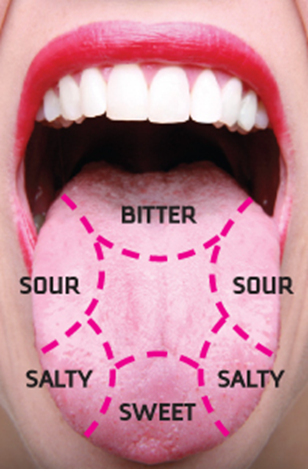




**Shape of Molecules:**

**Molecules may change their shape**

* When atoms combine, they can form various 3-D shapes, depending on their bonds.
* These shapes are flexible and rotate without breaking any of the covalent bonds.

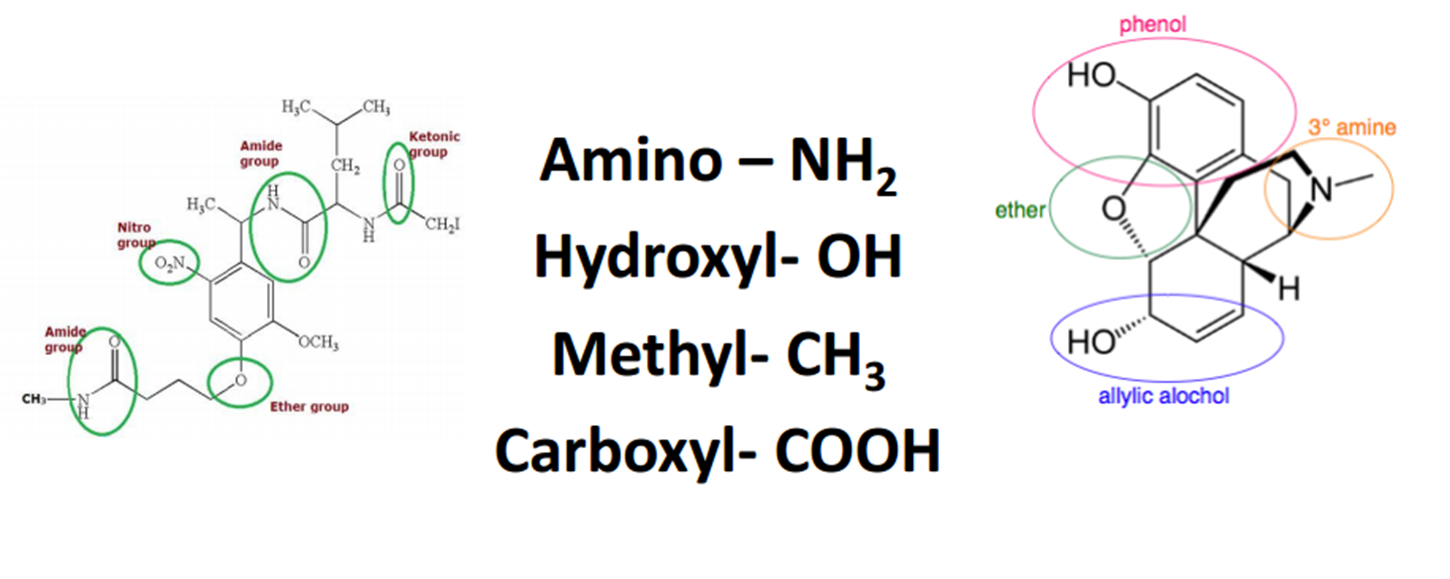


**Shape Affect Life**

* The 3-D flexible shape of a molecule contributes to their biological properties.

**For example:** Taste, food molecules interact with protein receptors on our tongues, two molecules recognize each other by their unique shape, and fit together like a key.

**Common Functional Groups**

* Groups of atoms with characteristic chemical features and properties attached to a molecule.
* Each functional group exhibits similar properties in all molecules it occurs in