CONCEPT: CHEMICAL BONDS

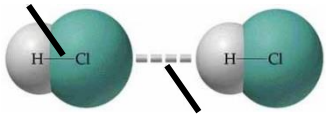
●*Chemical bonds* are how individual atoms interact and connect with each other.

□ _____-molecular bonds are within the molecule.

□ _____-molecular bonds exist between different molecules.

EXAMPLE: Appropriately label the chemical bonds:

_____ _____



_____ _____

Ionic & Covalent Intramolecular Bonds

●Ionic bonds: interactions between atoms that have opposite charges due to a *loss/gain of electrons* (**e**$^-$).

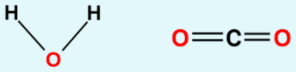
●Covalent bonds: occur when two atoms _____ a pair of electrons *equally* or *unequally*.

□ Electrons in a _____ covalent bond are *equally shared* but

□ Electrons in a _____ covalent bond are *unequally* shared.

●_____ (an atom's *affinity* for **e**$^-$) determines if the covalent bond is *polar* or *nonpolar*.

EXAMPLE: Complete the chart:

	Ionic Bonds	_____ **Covalent Bonds**	_____ **Covalent Bonds**
Do atoms share electrons?			
Type of Electron Sharing	None	_____ sharing of electrons	_____ sharing of electrons
Electronegativity of Atoms	Atoms **differ greatly**	Atoms **differ**	Atoms have **same or similar**
Examples	$Na^{\oplus}\ Cl^{\ominus}$		H—H

Noncovalent Intermolecular Forces

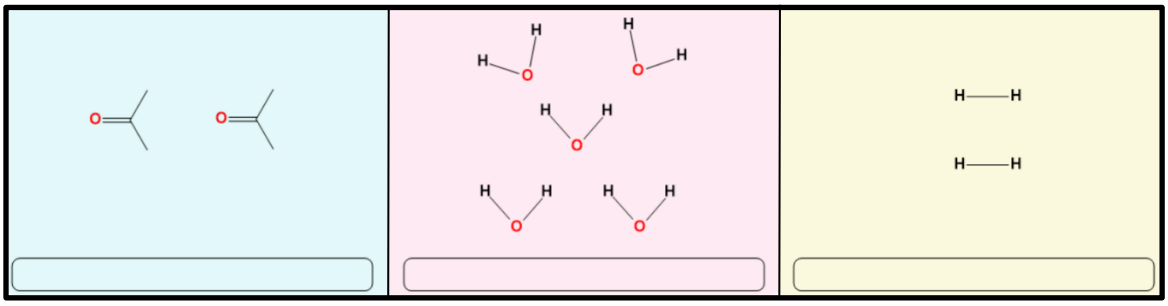
●*Hydrogen bonding*: interaction involving a hydrogen atom & electronegative atoms like N, O, or F.

●*Dipole*: a shift in _____ density due to electronegativity differences between atoms.

□ *Dipole-dipole interactions* exist between two dipoles.

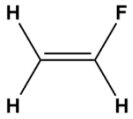
●*Van der Waals* forces exist between **all** molecules (result from _____ dipoles).

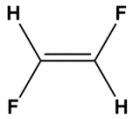
EXAMPLE: Label with the appropriate intermolecular force:

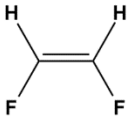


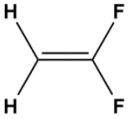
CONCEPT: CHEMICAL BONDS

PRACTICE: Which of the following is classified as a nonpolar molecule?

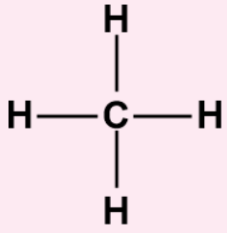
a) 

b) 

c) 

d) 

PRACTICE: Identify the types of chemical bonds present in scenarios #1 & 2 below:

1) 

2)