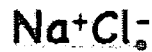
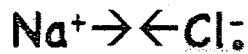


# Types of Chemical Bonds

## Ionic Bonds

- Electrons get \_\_\_\_\_
- opposite charges attract

Sodium Chloride (NaCl)



## Covalent Bonds

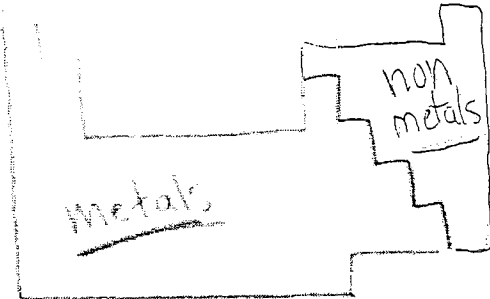
- Electrons are \_\_\_\_\_

Hydrogen Chloride (HCl)



### 1. Ionic Bonds:

- Connect \_\_\_\_\_ and \_\_\_\_\_



Some Examples:

AgCl  
Silver Chloride

MgI<sub>2</sub>  
Magnesium Iodide

AlO<sub>3</sub>  
Aluminum Oxide

11  
Na  
Sodium

NaCl  
Sodium Chloride

17  
Cl  
Chlorine

metal atom      nonmetal atom

Start with \_\_\_\_\_ atoms

Chlorine  
(0 charge)

Sodium gives an \_\_\_\_\_  
to Chlorine

Lost 1 e<sup>-</sup>

Gained 1 e<sup>-</sup>

Atoms get a charge and  
become \_\_\_\_\_

Ions

Ions have \_\_\_\_\_ charges,  
so they stick together

11  
Na  
Sodium

— Protons  
— Electrons

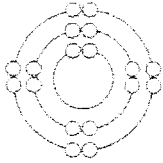


NaCl  
Sodium Chloride

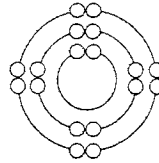


17  
Cl  
Chlorine

— Protons  
— Electrons

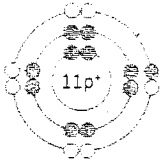


Every atom wants to have a full valence shell

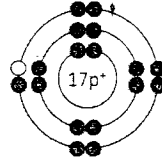


11  
Na  
Sodium

11 Protons  
11 Electrons

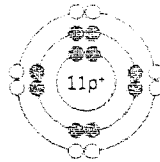


Atoms want full valence shells

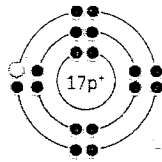


17  
Cl  
Chlorine

17 Protons  
17 Electrons



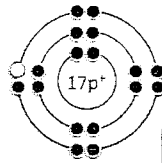
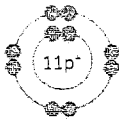
1 Electron is transferred



ION

11 Protons  
— Electrons

— Charge



ION

17 Protons  
— Electrons

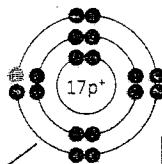
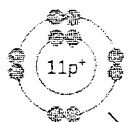
— Charge

## Ionic Bond

ION

11 Protons  
10 Electrons

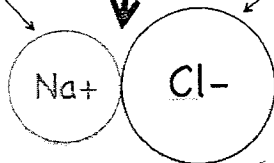
+1 Charge



ION

17 Protons  
18 Electrons

-1 Charge



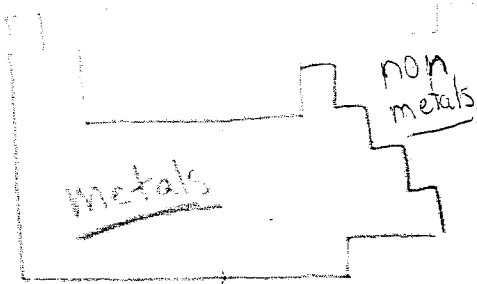
Why do they come together?

= \_\_\_\_\_ !!!

## 2. Covalent Bonds

- Connect \_\_\_\_\_ and \_\_\_\_\_

Some Examples:



Water



Hydrogen Chloride



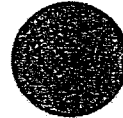
Carbon Dioxide

1  
H  
Hydrogen

— Proton  
— Electron



Hydrogen Chloride

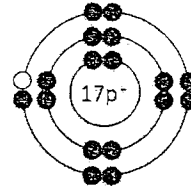


17  
Cl  
Chlorine

— Protons  
— Electrons



Every atom wants to  
have a  
full valence shell

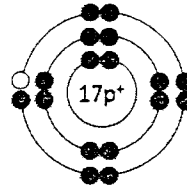


1  
H  
Hydrogen

1 Proton  
1 Electron

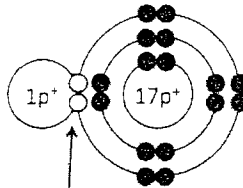


Atoms want  
full valence  
shells

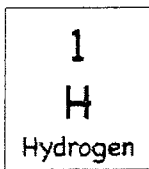


17  
Cl  
Chlorine

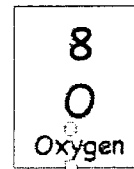
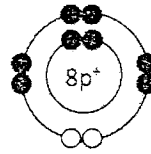
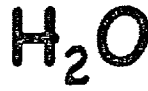
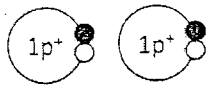
17 Protons  
17 Electrons



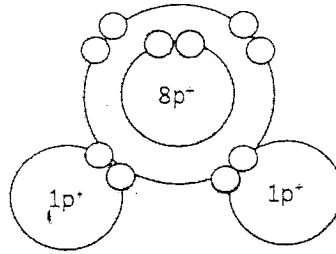
1 pair of Electrons is \_\_\_\_\_



— Proton  
— Electron



○ — Protons  
— Electrons



### Ionic Compounds

Made up of: \_\_\_\_\_ + \_\_\_\_\_

Type of Bond: \_\_\_\_\_

### Molecular Compounds (aka Covalent)

Made up of: \_\_\_\_\_

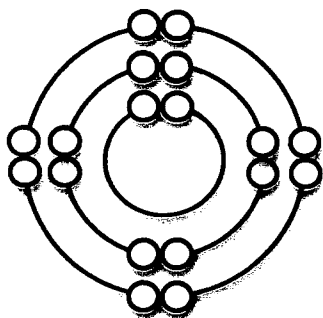
Type of Bond: \_\_\_\_\_

## Ionic Compounds vs. Molecular (Covalent) Compounds

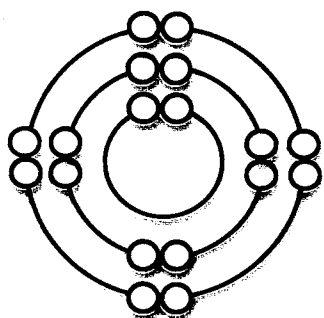
Name the type of compound, type of bonds, and # of atoms in each of the following:

Compound	Type of Compound	Type of Bonds	# of each atom in the compound
$\text{CaCl}_2$			
$\text{CO}_2$			
$\text{H}_2\text{O}$			
$\text{Sr}_3(\text{PO}_4)_2$			
$\text{K}_2\text{O}$			
$\text{NaF}$			
$\text{CH}_4$			
$\text{SO}_3$			
$\text{C}_{12}\text{H}_{22}\text{O}_{12}$			
$\text{Al}_2(\text{CO}_3)_3$			

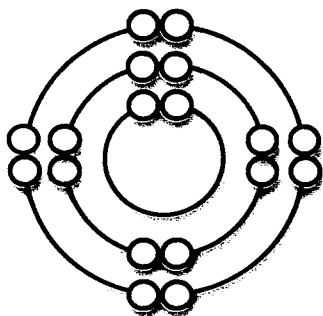
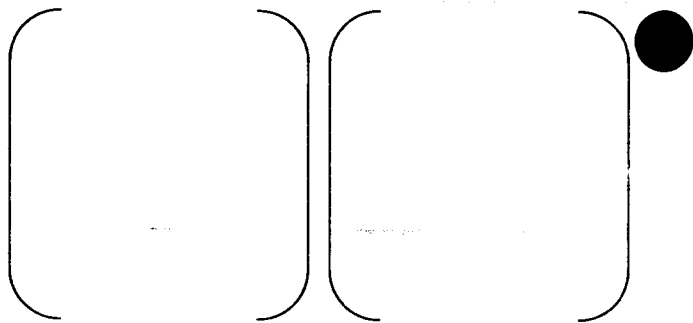
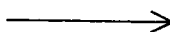
# Dot diagrams for Ionic Compounds



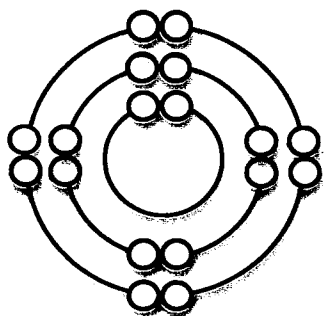
Sodium



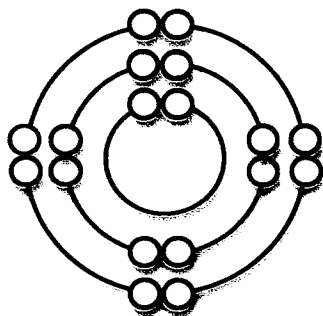
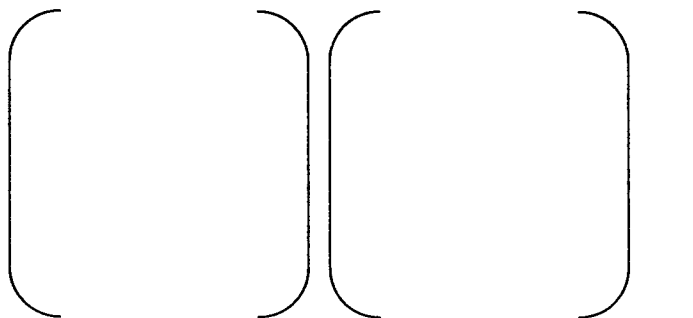
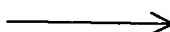
Chlorine



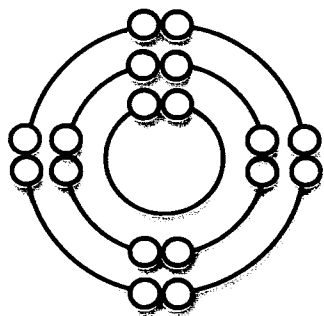
Potassium



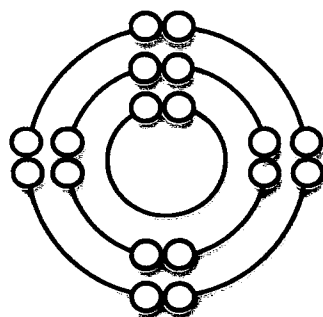
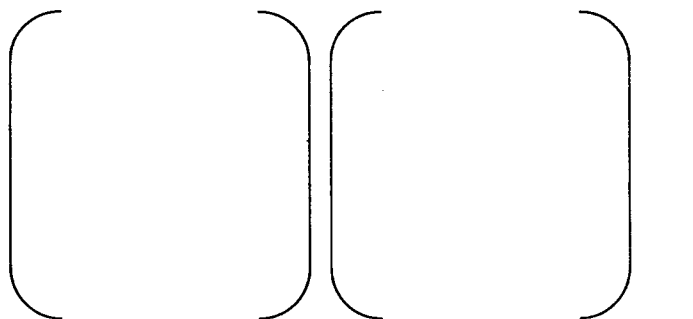
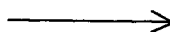
Chlorine



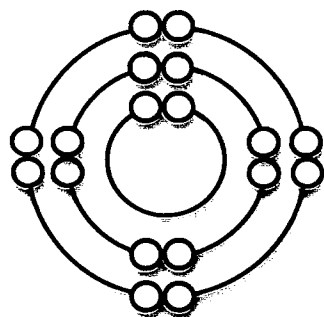
Magnesium



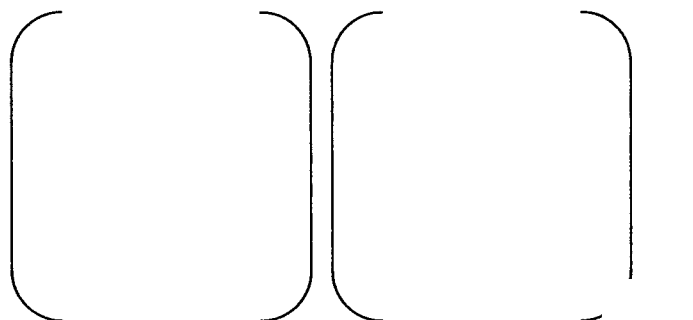
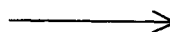
Oxygen



Beryllium



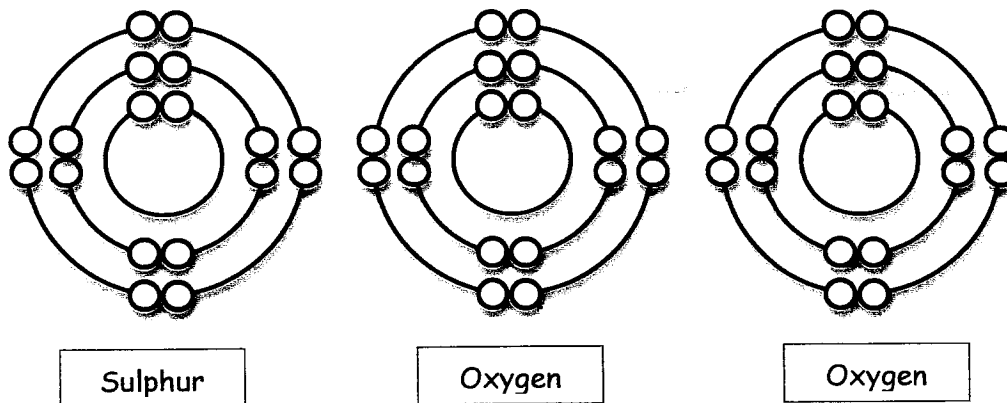
Sulfur



### Dot diagrams for Molecular (Covalent) Compounds

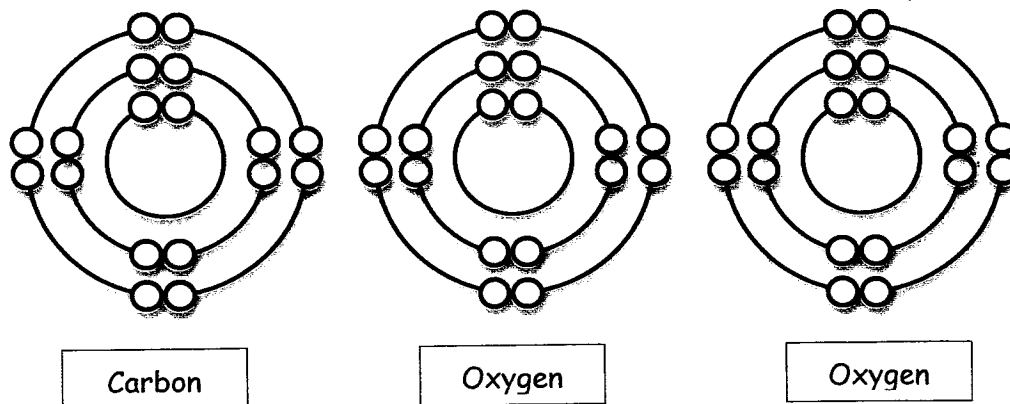
Draw the dot diagrams for the following Molecular Compounds and show how the electron sharing between atoms would occur:

#### SO<sub>2</sub> – Sulphur Dioxide



Draw how the molecule would look when electrons are being shared:

#### CO<sub>2</sub> – Carbon Dioxide



Draw how the molecule would look when electrons are being shared: