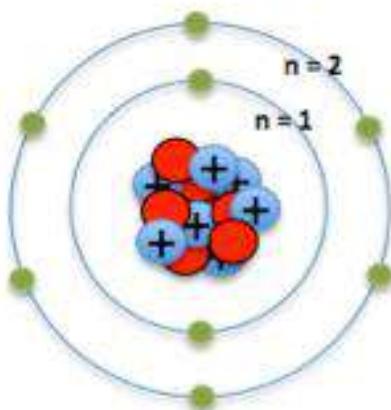


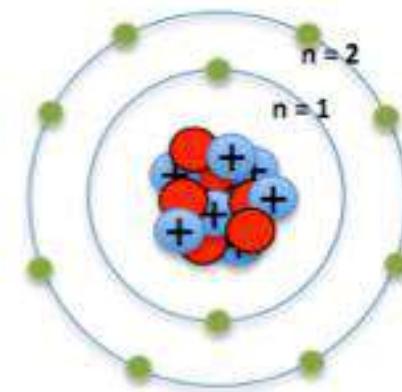
Atoms and Bonding Vocabulary

1. Valence electron

The electrons that are in the highest energy level of an atom and that are involved in chemical bonding.



Oxygen = 8 electrons
6 valence electrons



Neon = 10 electrons
8 valence electrons

Valence Electrons of Oxygen and Neon

Valence Electrons in Each Group

1	2	2
1	2	2
1	2	2
1	2	2
1	2	2
1	2	2
1	2	2
3	4	5
3	4	5
3	4	5
3	4	5
3	4	5
3	4	5
3	4	5

2. Ion

An atom or group of atoms that has an electric charge.

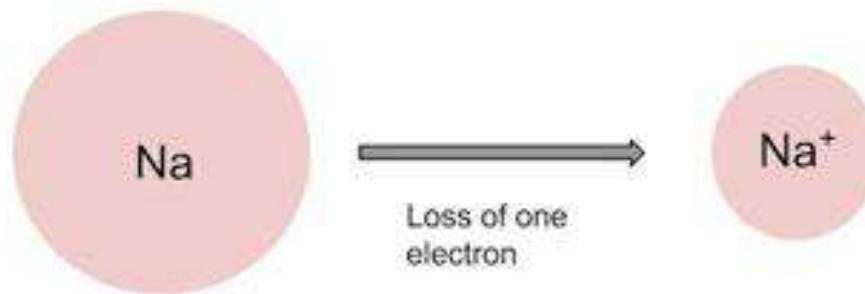


Figure 1,
Neutral sodium
atom with 11
electrons



Figure 2,
Sodium cation
with 10 electrons



Chloride ion



Nitride ion



Sodium ion



Vanadium ion



Copper 1+ ion, copper 2+ ion and copper 3+ ion.



3. Polyatomic ion

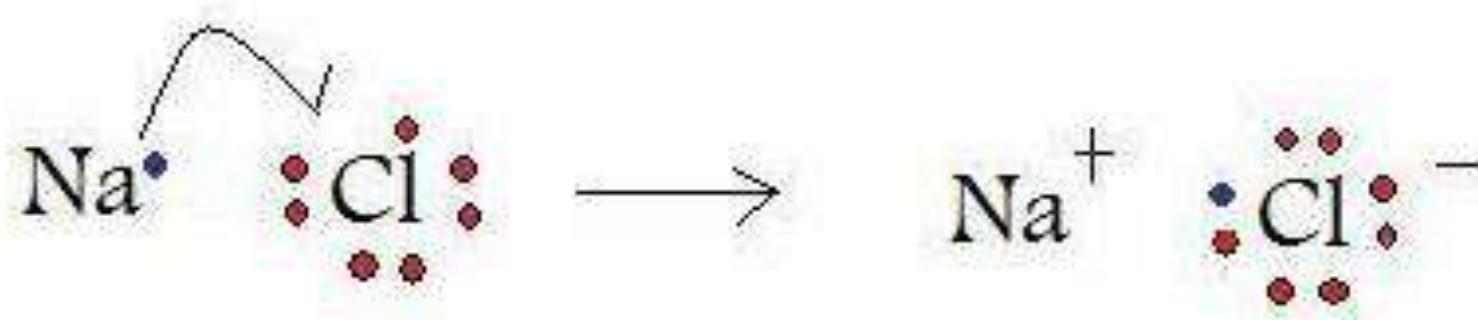
An ion that is made of more than one atom.

Polyatomic Ions

Polyatomic Ion	Formula	Ionic Formula	Charge
Ammonium	NH_4	$[\text{NH}_4]^+$	1+
Hydroxide	OH	$[\text{OH}]^-$	1-
Nitrate	NO_3	$[\text{NO}_3]^-$	1-
Sulfate	SO_4	$[\text{SO}_4]^{2-}$	2-
Carbonate	CO_3	$[\text{CO}_3]^{2-}$	2-
Phosphate	PO_4	$[\text{PO}_4]^{3-}$	3-

4. Ionic bond

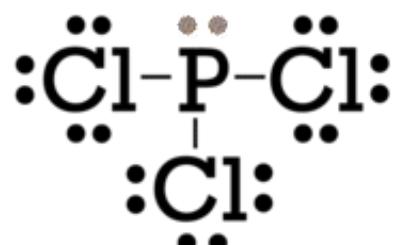
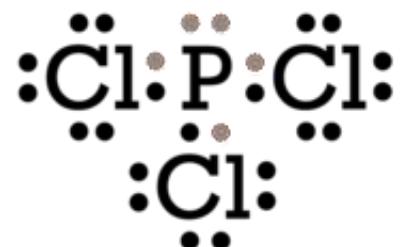
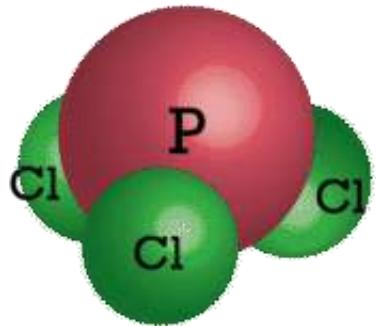
The attraction between oppositely charged ions.



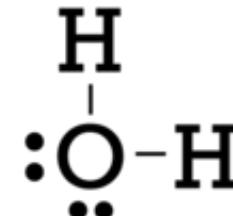
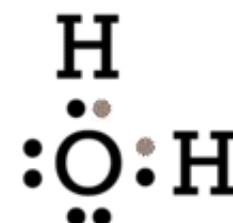
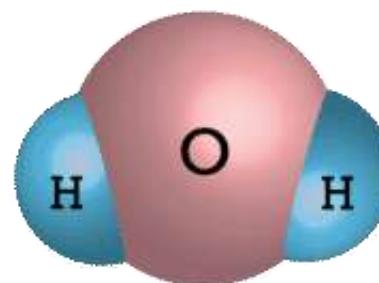
5. Covalent bond

A chemical bond formed when two atoms share electrons.

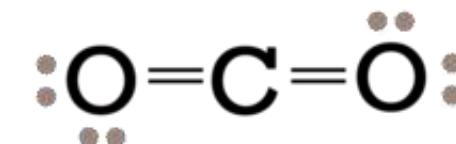
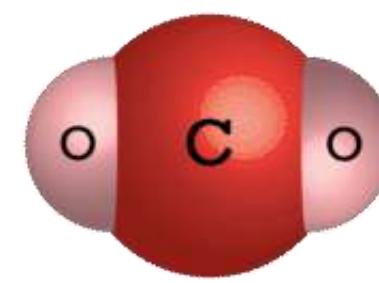
Phosphorus Trichloride



Water



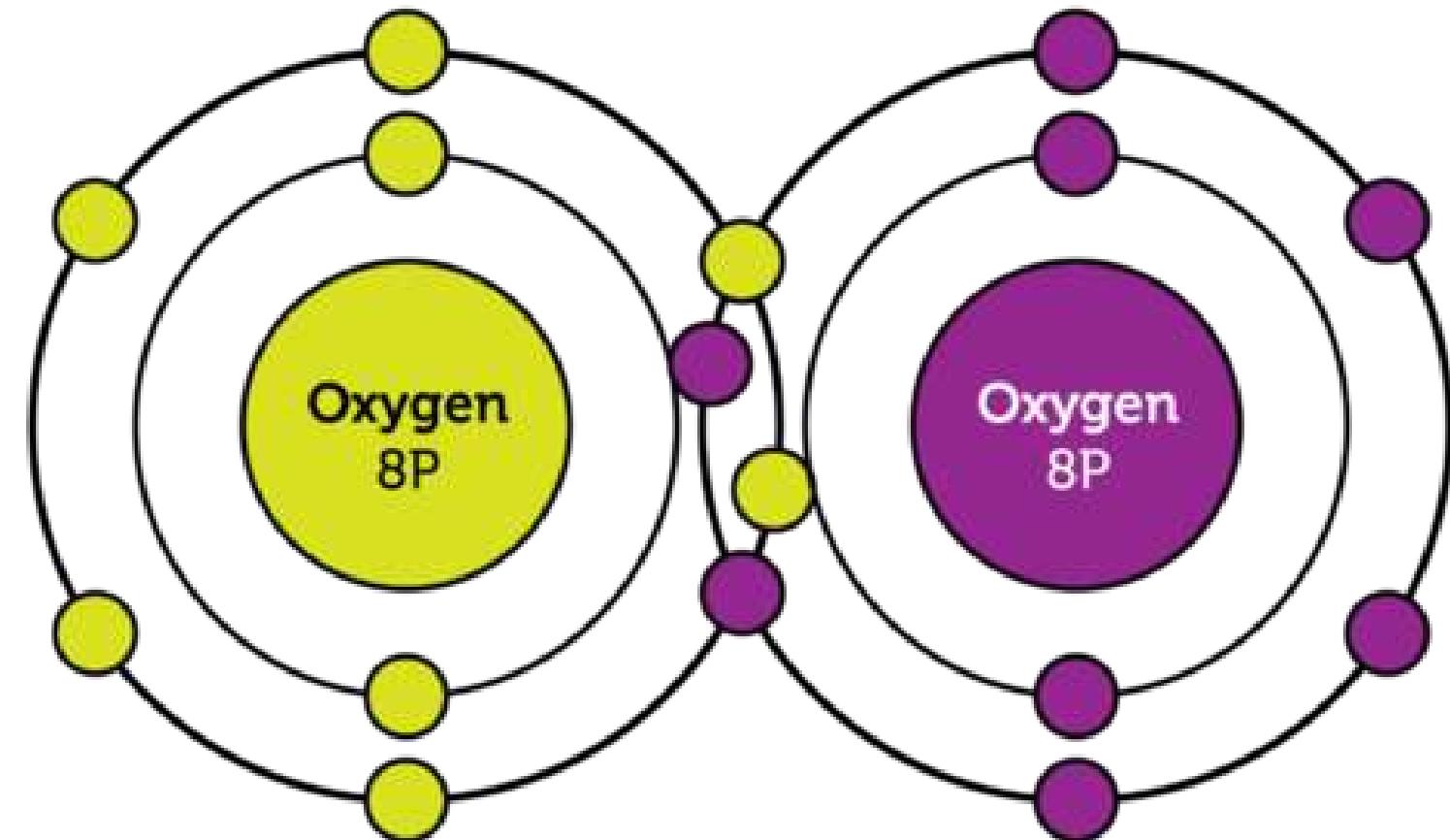
Carbon Dioxide



6. Nonpolar bond

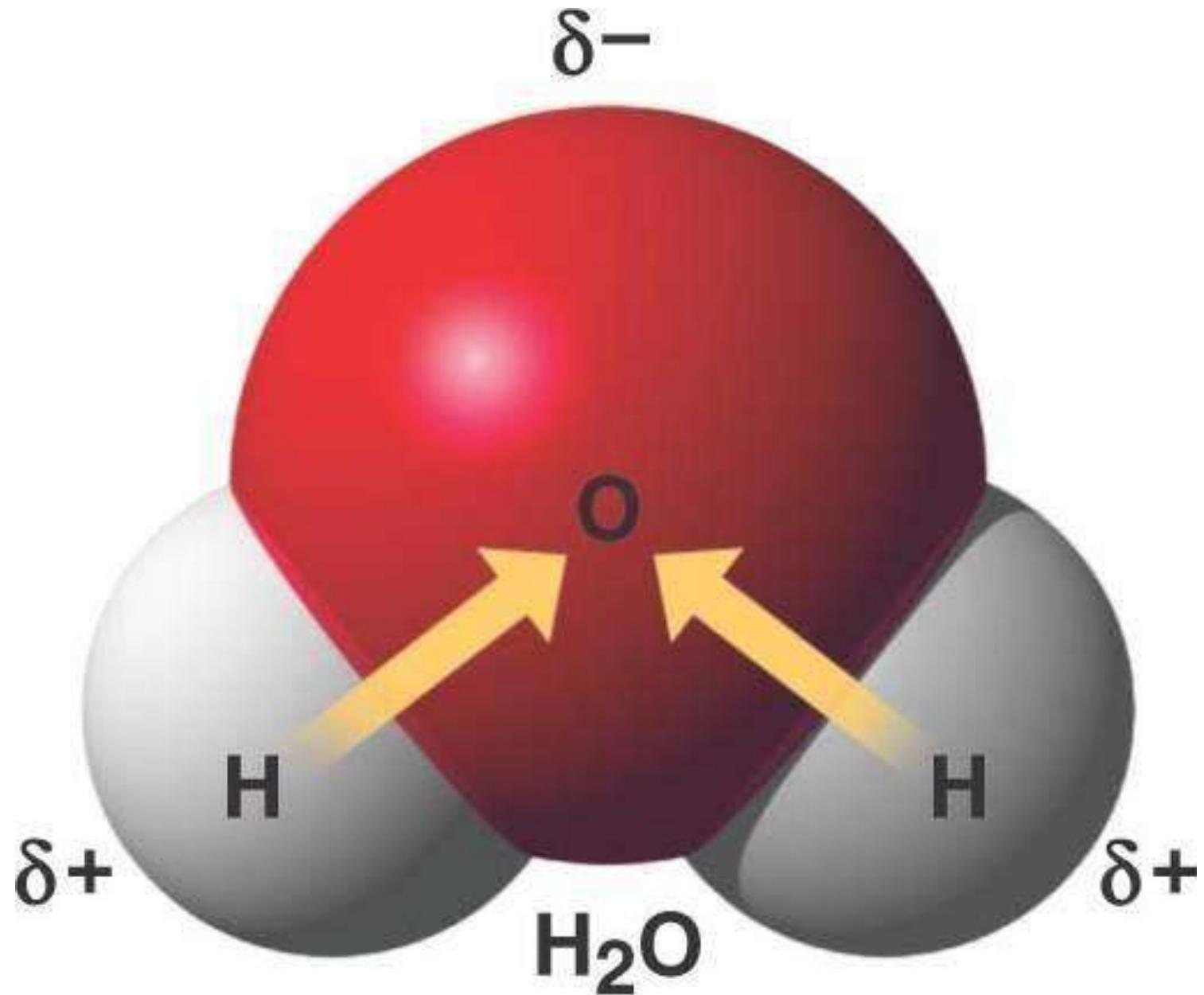
A covalent bond in which electrons are shared equally.

Nonpolar Bonds in an Oxygen Molecule (O_2)



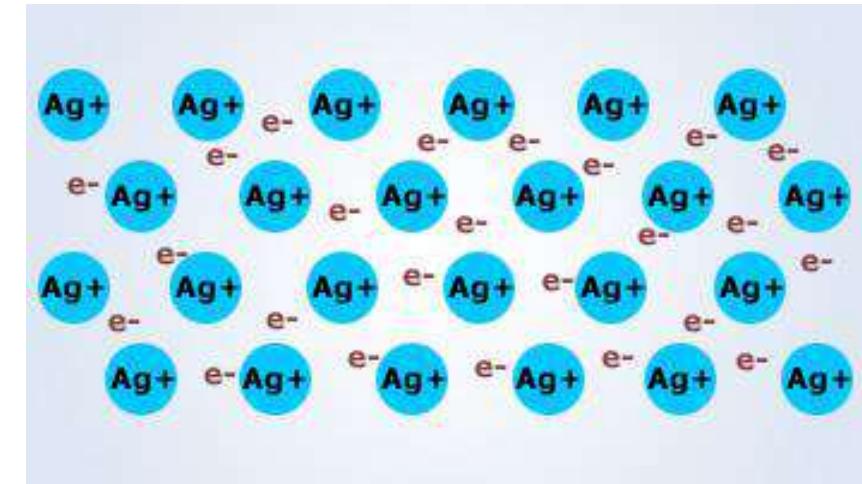
7. Polar bond

A covalent bond in which electrons are shared unequally.



8. Metallic bond

An attraction between a positive metal ion and the electrons surrounding it.



<https://cdn.jmbullion.com/wp-content/uploads/2013/09/1-oz-sunshine-silver-bar.jpg>