

**IONS:** A charged atom.



Neutral atoms can gain or lose electrons to become an ion.

### **Positive Charge Ion (CATION)**

- Occurs when atoms LOSE electrons.
- Atom now has more (+) protons than (-) electrons.
- Are LESS reactive with other atoms.
- Metals have few VE and tend to LOSE ve to form a Positive Ion.

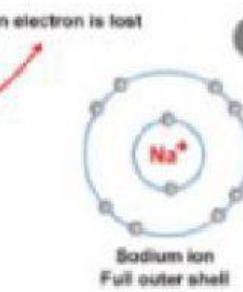
#### **Example:**



#### **Sodium atom**

11+ protons  
11- electrons

0 Charge  
Neutral Atom



#### **Sodium ion (Na<sup>+</sup>)**

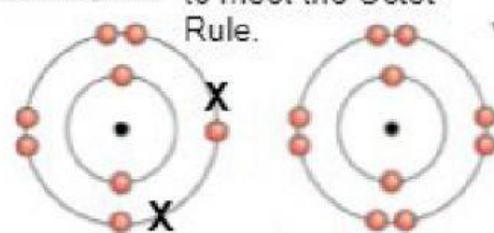
11+ protons  
10- electrons

1+ Charge  
Positively  
Charged  
Atom

### **Negative Charge Ion (ANION)**

- Occurs when atoms GAIN electrons.
- Atom now has more (-) electrons than (+) protons.
- Anions are **MORE** likely to react with other atoms.
- Nonmetals' outer levels are almost full. They only need a few electrons to be full.

#### **Example:** O needs to gain 2 VE to meet the Octet Rule.



#### **Oxygen atom (O)**

8+ protons  
8- electrons  
0 Charge  
Neutral Atom

#### **Oxide ion (O<sup>2-</sup>)**

8+ protons  
10- electrons  
2- Charge  
Negatively  
Charged Atom

**NOTICE:** name of ion now ends with **-ide**.  
Which means **negative**.

#### **NOTICE:**

The # of Energy Levels and # of VE have changed in the ion.

**Oxidation Number:** Ions are written with a number. It represents the number of electrons lost OR gained by an atom of an element. **Sodium ion (Na<sup>+</sup>)**    **Oxide ion (O<sup>2-</sup>)**