Name_____Class 1.9`

Counting Subatomic Particles using Net Charge

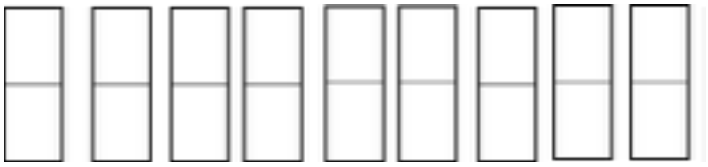
Define: Ion _____

Unbonded atoms generally have an overall net electrical charge of zero, meaning that the number of protons equals the number of electrons. Unless otherwise stated, you can assume that the word "ATOM" means a _____ atom.

Example: Hydrogen

- How many protons does an atom of hydrogen have? _____ What is the overall charge of the nucleus? _____p^+
- Using this you can figure out how many electrons a NEUTRAL atom of Hydrogen must have. _____e^-

Example: If a NEUTRAL Oxygen atom has 8 protons, how many electrons does it have?_____

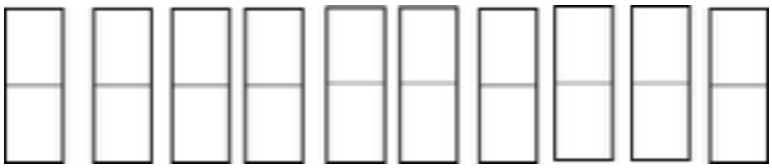


When atoms form bonds, which we will talk about in detail in Unit 3, electrons are either shared or transferred between atoms. This changes the overall number of electrons which has an impact on net charge.

When an atom has a net charge NOT equal to zero, it is called an _____.

Example: When forming bonds, Oxygen often gains two more electrons. What is the overall net charge for this _____?

Visually



Net Charge = _____ Ionic Notation: _____

Mathematically

Net Charge = Number of Protons (+1) + Number of Electrons (-1)

Net Charge = ____(+1) + ____(-1)

Quick Method

- Which particle do you have more of? _____
- This means that your charge will be _____
- How many more of these particles are there? _____ Final Charge = _____

Practice - How many protons and electrons are there in an atom of Lithium with a +1 charge?

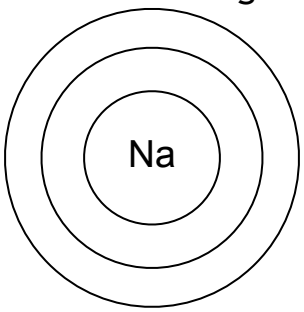
_____p^+

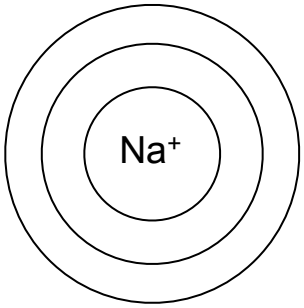
_____e^-

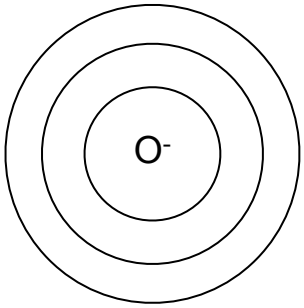
Summary

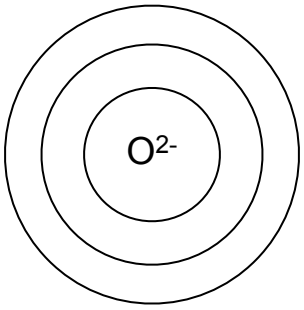
- A Neutral atom has the same number of _____ and _____.
- If an atom gains or loses electrons, it is called an _____.
- If an atom Gains electrons, it will have a _____ net charge (more_____ than_____)
- If an atom Loses electrons, it will have a _____ net charge (more_____ than_____)
    - Remember the number of _____ will NEVER change!

Ionic Bohr Diagrams









Directions Individually, or in your groups, complete the following chart questions. Whatever is not completed in class will be homework. Feel free to show any work or draw diagrams on loose leaf.

Element	Atomic Symbol	Atomic Number	Number of Protons	Number of Electrons	Net Charge	Ionic Notation
Sulfur					-2	
	K			21		
		19			0	
Iron					+2	
	Fe					Fe^{+3}

		29		30		
Chlorine						Cl^{-1}
				13	0	

Challenge: Complete the following Chart

Element	Atomic Symbol	Atomic Number	p^+	n^0	e^-	Mass Number	Net Charge	Notation
		7		7			0	
	Mg				10	24		