Atomic Structure Notes

Subatomic Particle	Abbreviation	Charge	Location	Mass (a.m.u.)
Proton	p^+	+1	Nucleus	1
Neutron	n^0	0	Nucleus	1
Electron	e^-	-1	Orbitals Surrounding the Nucleus	Negligible, Almost 0

Nucleus- extremely dense center of the atom, consists of protons and neutrons, contains almost all of the mass and virtually none of the volume of the atom

Atomic Symbol- the one or two letter abbreviation of an element

Atomic Number- the identifying number of a specific atom, equal to the number of protons for that element

Mass Number- the number of protons and neutrons

Nuclear Symbol- Mass #

Atomic Symbol

Atomic #

Isotope- atoms of the same element with a different number of neutrons

Ion- an electrically charged atom

Cation- a positively charged ion resulting from losing an electron

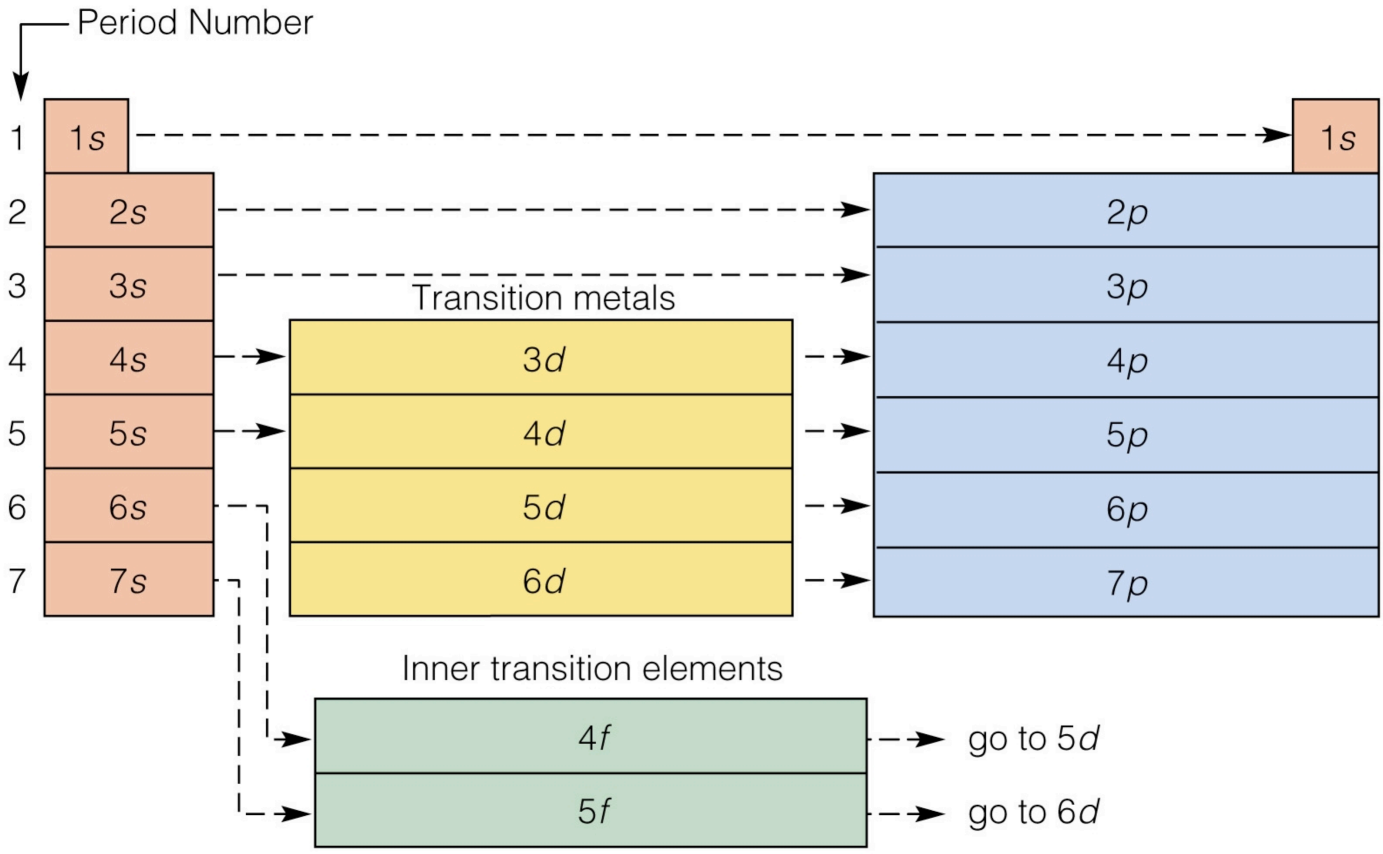
Anion- a negatively charged ion resulting from gaining an electron

Rule for Electron Configuration

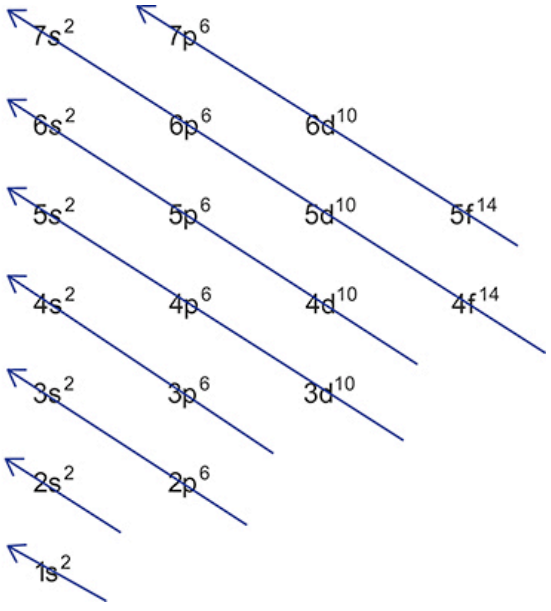
Aufbau- States that electrons fill beginning with the lowest energy levels first.

Hund's Rule- States that electrons fill orbitals of the same energy (degenerate orbitals) by adding one electron to each orbital all with the same spin and then doubling up.

Pauli Exclusion Principle- States that any orbital can only hold a maximum of two electrons with opposite spins.



$1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2$
$3d^{10}\ 4p^6\ 5s^2\ 4d^{10}\ 5p^6\ 6s^2$
$4f^{14}\ 5d^{10}\ 6p^6\ 7s^2\ 5f^{14}\ 6d^{10}\ 7p^6$



Diagonal Rule