

## Chapter 8 – The Periodic Table

The electron configuration of each element is directly related to its position in the periodic table.

s block		d block										p block																																	
1A	2A	3B	4B	5B	6B	7B	8B	8B	8B	1B	2B	3A	4A	5A	6A	7A	8A																												
1s	2s	3s	4s	5s	6s	7s	1s	2s	3s	4s	5s	6s	7s	2p	3p	4p	5p	6p	7p																										
3	4	11	12	19	20	37	38	55	56	87	88	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	49	50	51	52	53	54	81	82	83	84	85	86	113	114	115	116	117	118
3d	4d	5d	6d	7d	8d	9d	10d	11d	12d	3p	4p	5p	6p	7p	8p	9p	10p	11p	12p	13p	14p	15p	16p	17p	18p	19p	20p	21p	22p	23p	24p	25p	26p	27p	28p	29p	30p	31p	32p	33p	34p	35p	36p		
4f	5f	6f	7f	8f	9f	10f	11f	12f	13f	14f	15f	16f	17f	18f	19f	20f	21f	22f	23f	24f	25f	26f	27f	28f	29f	30f	31f	32f	33f	34f	35f	36f	37f	38f	39f	40f	41f	42f	43f	44f	45f	46f	47f	48f	

The \_\_\_\_\_ electrons are the ones involved in chemical bonding, these are called \_\_\_\_\_.

Examples:

The valence electrons for Ca are in the \_\_\_\_\_ subshell.

The valence electrons for oxygen are in the \_\_\_\_\_ subshell.

The valence electrons for Fe are in the \_\_\_\_\_ subshell.

Elements in a group have the \_\_\_\_\_ of valence electrons:

Group 1A	Sc group
Group 2A	Ti group
Group 3A	V group
Group 4A	Cr group
Group 5A	Mn group
Group 6A	Fe group
Group 7A	Co group
Group 8A	Ni group
	Cu group
	Zn group

## Anions and Cations

The \_\_\_\_\_ valence electrons (or, \_\_\_\_\_ available for valence electrons) can tell us what kind of \_\_\_\_\_ it will form.

Examples:

Ca Cl

Ca ion: Cl ion:

Na O

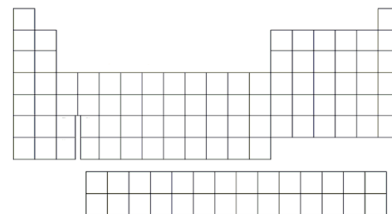
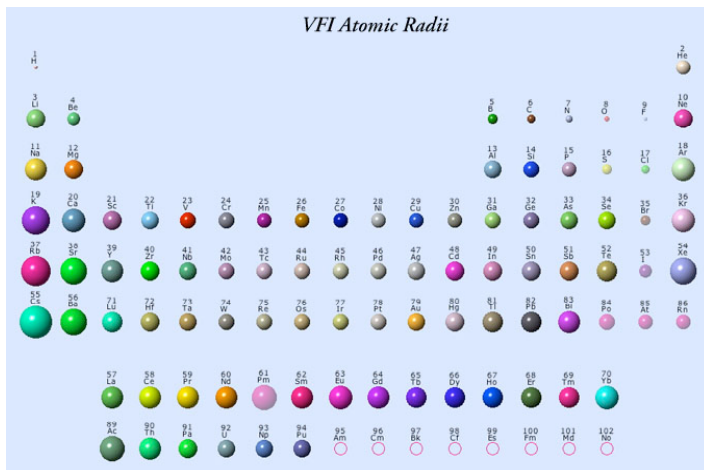
Na ion: O ion:

Isoelectronic:

## Periodic Variation in Chemical Properties

We can use the location of elements in the periodic table to tell us some things about the element's properties.

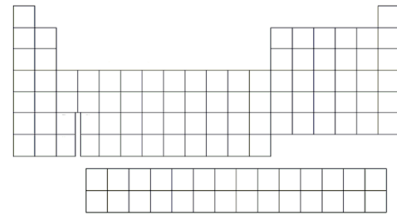
**Atomic Radius:**



**Ionic Radius:**

Cations:

Anions:



Which is larger:

Nitride or fluoride?

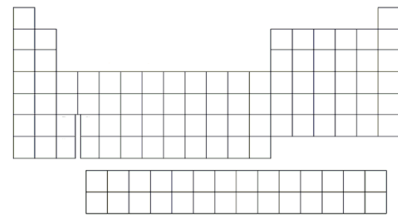
Magnesium ion or calcium ion?

Iron(II) ion or iron(III) ion?

**Ionization Energy:**

Cations:

Anions:



**Electron Affinity:**

Anions:

Cations:

