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## Optional Reviews and Extensions

- First you need to familiarize yourself with the periodic table. It's the fundamental knowledge that is acting as a base for everything you will be coming across in Chem125/126.

[[http://www.youtube.com/watch?feature=player\\_embedded&v=YaUzhsOmDLE](http://www.youtube.com/watch?feature=player_embedded&v=YaUzhsOmDLE)]

You're not expected to memorize the common ion charges, but you want to understand the information provided in the periodic table. Get familiar with the table so you're not seeing it for the first time on the test and have no clue what it means.

- Note that the family number (1A, 2A, etc) is the same as the **maximum positive charge** for the element that resides in that family.
- The number of **available electrons** for reaction (as metals) are the same as the family number.

### F.Y.I

As the outer electrons (in the unfilled energy levels) are lost, the inner energy levels are filled, making the element stable.

- 3A-6A groups: have two oxidation numbers other than zero.

the electron in the **outer energy levels** (sub-shells are named s, p, d, and f. Different sub-shells can hold different numbers of electrons: s=2, p=6, d=10, f=14) are filling two different **sub-energy levels** (electrons of atoms that can participate in the formation of chemical bonds with other atoms ex) Au (gold) =  $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^6 4d^{10} 4f^{14} 5s^2 5p^6 5d^{10} 6s^1$ ) outer energy level (valence electrons) that participate in chemical bonds- 1 electron that resides in the "s" sub-shell in the 6th energy level.

- the post transition metals: 2 electrons in the s sub-energy levels and varying number of electrons in the p sub-level.
  - typically the electrons in the s sub-energy levels are lost first, that's why there is a difference of two between losing all and losing some of the electrons.