**Study Guide for 3.5 Atomic Structures and the Periodic Table**

Review from Yesterday:

1. What is the Aufbau principle for writing electron configurations?
2. For Chlorine draw a: electron configuration and an energy-level diagram (orbital diagram).
3. Why do the electrons in 2s remain in place rather than being pulled into the nucleus from 2p? Which electrons have more or less energy, 2s or 2p?
4. What is the anomaly for the 4s and 3d orbitals? Which level has more energy? How does this change the rules for creating an orderly electron configuration?
5. Explain the penetration effect? (p. 161)
6. Define valence electron. (p.167)

**Application 4.1 (p. 194) Chemical Bonds**

Define the following (should be review)

* ionic. p. 194
* isoelectronic, p. 195
* covalent bond, p. 195
* bonding electron pair, p. 195
* Lewis Structure , p. 196
* Duet rule, p. 196
* Octet rule, p. 196
* Lone electron pair, p. 197

Draw the following using the Lewis Theory of Bonding

Do practice, p. 200, #1 and 2

Do review 4.1, p. 205, #4, 5 and 6

**4.2 Three-Dimensional Structure**

Define the following:

* Three dimensional structure, p. 206
* Electron pair repulsion (VSEPR) theory, p. 206

Review and know the Table #2, p. 209

Apply Do: draw the following structures, p. 212, # 1 and 2.

Apply Do: draw the following molecules, p. 214, # 1

Apply Do: draw the following ion, and molecules, p. 215, # 1 and 2.

Apply Do: Review 4.2, p. 216, # 1, 2, 5, 6.

**4.3 Electronegativity and Bond Polarity**

Define the following:

* Non-polar covalent, p. 217
* Polar covalent bond, p. 217
* Electronegativity, p. 218
* Dipole, p. 219, (show the diagram of delta and the dipole diagram) see Figure 6, p. 219.

Apply and do: p. 220, Practice # 1 and 2.

Apply and do: p. 221, Review 4.3, # 1, 3, 4, and 6.

**4.5 Molecular Polarity**

Define the following:

* Polar molecule, p. 225
* Non polar molecule, p. 225

Apply and do: p. 227, Practice, # 1 and 2.

Apply and do: Review, p. 229, #1-7