**Study Guide: test! Chapters 6, 7, 8, 9, 10**

* **Periodic table**
	+ **How organized**
		- **Details about elements: all sorts of information**
	+ **Types of elements**
	+ **Periodic trends**
		- **Electronegativity**
		- **Ionic and atomic radii**
* **Ionic and Metallic bonding**
	+ **Valence electrons in elements**
		- **How to count?**
	+ **Octet rule, and common “violators”**
	+ **Formation of cations, anions; who does what?**
	+ **Electron configuration is inherent in this….**
* **Ionic solids vs. covalent compounds**
	+ **Intermolecular attractions**
		- **What are they?**
		- **Where are each type found?**
	+ **Properties of electrolytes**
* **Covalent Bonding**
	+ **Molecular formulas**
	+ **Don’t forget the diatomic elements!**
	+ **Single, double, triple bonds…yeah**
	+ **Resonance…more than one equivalent structure**
	+ **Bond dissociation energy…the stronger the bond, the more energy it takes to break it**
	+ **VSEPR**
		- **Shapes…depend upon number of electron domains around central atom**
		- **Count all valence electrons, add +/- for “charge” of ion, then make the appropriate Lewis structure; now, arrange them so as to be able to draw in 3-d fashion; figure out shape with domains as far apart as possible, within the framework given (tetrahedral, trigonal bipyramid, octahedral, etc.)**
	+ **Polarity…distribution of charge, either along a bond, or the molecule overall. Remember, you can have polar bonds but a nonpolar molecule…be thoughtful (good advice everywhere)**
* **Naming compounds**
	+ **Cations first, then anions**
		- **Metals don’t change their names**
			* **Is a Roman numeral needed, to indicate oxidation state?**
		- **Anion: if single element, -ide!**
		- **If polyatomic ion, choose wisely…you have quite a list**
	+ **MOST IMPORTANT…BALANCE THE CHARGES…ALL THE (+) MUST BALANCE ALL THE (-)**
	+ **Remember the cris-cross way to balance charges**
	+ **Make sure you have read section 9.4 on naming acids and bases**
		- **Add the number of hydrogens back to front of molecule to create acid form**
			* **Example: SO4-2 become H2SO4 (sulfuric acid)**
* **Chemical Quantities**
	+ **Moles…not just a small garden or yard pest, quite likely the most important unit ever.**
	+ **Molar mass…I know all of you can calculate this**
	+ **Hydrates: those molecules with a given number of molecules of bound water…be thoughtful**
	+ **Don’t forget…at STP, 22.4L = 1 mole of a gas**
* **Percent Composition**
	+ **Think pie graph…must always equal 100%**
	+ **Take percentages, convert to grams, divide by atomic mass for moles, divide by smallest # moles for simplest ratio, multiply by small number to make whole number ratio, as needed**