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**IDX G9 Chemistry S STUDY GUIDE ISSUE 5**

**By Gorden**

* Ch 6
* Atomic Size (Atomic Radius):
	+ Increases as you move down a group
	+ Decreases as you move left to right across a period.
		- Happens because of attraction
	+ Ex. Li > Na > K. Na > Mg > Al.
* Ionic Size:
	+ Cations (positive), smaller than the original atom.
		- Ca + ions
	+ Anions (negative), larger than the original atoms.
		- A n(egative) ions
	+ Ex: Na+ < Na, Cl- > Cl.
* Ionization Energy (IE):
	+ Def: Energy required to remove a electron from an atom.
	+ Decreases down a group.
	+ Increases left to right across a period.
	+ Ex: Li < Na, Be > B > C.
* Electronegativity (EN):
	+ Def: Ability of an atom to attract electrons in a bond.
	+ Decreases down a group.
	+ Increases left to right across a period.
	+ Ex: F> O > N > C.
* Ch 7
* Valence Electrons
	+ Def: Electrons in the outermost energy level.
	+ Determine an element’s reactivity and chemical behavior.
	+ Ex: 1A elements have 1 valence electron, Group 7A have 7
	+ Octet Rule: Atoms gain, lose, or share electrons to achieve 8 valence electrons (noble gas)
* Naming Ion
	+ Cations: Element name
		- Ex: Na+ = sodium ion
	+ Anions: Element name + ide
		- Ex: Cl- = chloride ion
* Ionic Bonds
	+ Def: Attraction between cation and anion
	+ Ex: Na+ + Cl- = NaCl (force between Na+ and Cl-)
	+ Ratio between Na+ and F- is 1:1
		- For Na+, 1 electron is taken and for F-, 1 electron is added.
			* Reverse the numbers (1 and 1) to get the ratio 1:1
* Formula unit: Simplest ratio of ions in a compound
	+ Ex: Na2O is a formula for sodium oxide. Within a formula unit of Na2O, there are 2 sodium ions and 1 oxide ions.
* Coordinate number: the number of oppositely charged ions to a certain ion
	+ Ex: in NaCl, the coordinate number of NaCl+ is 6. The coordinate number of Cl- is 6.
	+ Each Na+ ions is surrounded by Cl- ions. Each Cl- ion is surrounded by 6 Na+ ions.
		- Na6Cl6 -> NaCl
* Naming rule: Name of cation + Name of anion
	+ Ex: sodium chloride is [Na]+[Cl(8 dots)]-
	+ Calcium fluoride is CaF2, net charge is (+2)+2\*(-1), which is 0.
* Ionic Compound properties
	+ Higher melting and/or boiling points that other types of compound (Molecular Compound)
	+ Break or shatter easily in room temperature.
	+ Conduct electricity when melted or dissolved in water (Poor conductors in solid)
		- NaCl (solid) ->NaCl (molten)->Na+ (liquid)+Cl- (molten)
		- NaCl (solid) ->in H2o->NaCl (aqueous)->Na+ (aqueous)+Cl- (aqueous)