2. Nonmetals gain enough electrons to have the same number of electrons as the next noble gas.
    a. ex.) Bromine has 35 protons and 35 electrons, gains 1 electron, has 35 protons and 36 electrons, which is the same number of electrons as Krypton, becomes Br-.

★ Ionic Bonds: Intermolecular Interaction
- Electrostatic interaction (attraction) between cations & anions in which electrons are transferred.
- Form between a metal (cation) and a nonmetal (anion), and because ionic attractions are so strong, ionic compounds melt or boil at high temperatures, and it takes a lot of energy to break the bond apart.
- Solids do not conduct electricity, but liquids are good conductors of electricity because it allows for more mobility of charge.
- Overall charge in an Ionic Compound must be 0, so charges need to be balanced to 0.
    - ex.) Sapphire: $Al^{3+} and\ O^{2-} \rightarrow Al_2O_3$ because if there are 2 Al, the charge will be 6+, and if there are 3 O, the charge will be 6-, which balances to 0.

★ Covalent Bonds: Molecular Bonds
- Electrons are shared (equally or unequally) because of an attraction between the positive nuclei & electrons.

★ Ionic or Covalent?
- SO_2 : S and O are both nonmetals/has 2 anions, so this compound is covalent.
- CaF_2 : Ca is a metal and F is a nonmetal, so this is ionic and a cation.
- NH_3 : N and H are both nonmetals/has 2 anions, so this compound is covalent.

2.7 - Chemical Nomenclature: Naming of Compounds

★ Polyatomic Ions
- Prefix Per-: has more oxygen atoms than with -ate.
- Suffix -Ate: has more oxygen atoms than -Ite, but less than Per-
- Suffix -Ite: has less oxygen atoms than -ate
- Prefix Hypo-: has the least oxygen

★ Ionic Compounds
- Compounds containing monatomic ions: Start with the name of the cation (metal) followed by the name of the anion (nonmetal) with its ending replaced by the suffix -ide.
  ex.) $NaCl = Sodium\ Chloride$
- Compounds with polyatomic ions: same as monatomic, but using same suffix as already present
- Compounds containing metal with a variable charge: Specify the charge using roman numerals.
  ex.) $FeCl_3 = Fe^{3+}\ 3Cl = Iron(III)\ Chlorate$