Covalent Formulas and Names

A. Compounds that Contain Oxyanions

- Oxyanions are polyatomic ions containing an oxygen atom, they form compounds using ionic bonds with cations
- Name these compounds as cation + anion (don't change the ending)

Hydrated Salts

- Crystal salts that contain water molecules
- Naming: use "hydrate" to indicate the presence of a water molecule
- Use greek prefixes (mono, di, tri, tetra, penta, hexa, hepta, octa, nona & deca) to indicate how many water molecules are present
- Use a raised dot in between the salt and the water molecules
    - Eg. copper(II) sulphate pentahydrate = $CuSO_4 \bullet 5H_2O$

Acid Salts

- Family of salts whose anions have one or more covalently bound H atoms attached
- Act as regular anions
    - Eg. HCO_3 = hydrogen carbonate

B. Formulas and Names of Binary Covalent Compounds

- Use greek prefixes to indicate number of atoms of each element are present
- Give second element the ending "ide"
- Mono is not used on the first element
- Hydrogen always goes first when present; it's the lady of the periodic table…
    - Eg. SF_4 = sulphur tetrafluoride

C. Formulas and Names of Binary Acids

- Binary acid: acids that contain hydrogen and one other element
- At room temperature, they are gases named like regular covalent compounds
- In solution, they are acids and are named in the form: hydro _____ ic acid, (the blank is the name of the other element minus the ending)
    - Eg. HCl(g) = hydrogen chloride
      HCl(aq) = hydrochloric acid

D. Formulas and Names of Ternary Acids

- Ternary acid: an acid that contains hydrogen and an oxyanion
- Naming: ending of anions with "ate" is changed to "ic" acid
  Ending of anions with "ite" is changed to "ous" acid
    - Eg. H_2SO_4(aq) = sulfuric acid
      H_2SO_3(aq) = sulphurous acid