Today:

- Ionic compounds
- Nomenclature (naming simple ionic compounds)
- Review of valence electrons and common ions for metals and nonmetals
- Octet rule
- Electronic configuration for ions
- Putting ions together into compounds – charge balance
- Stock system – Roman numerals
- When to use the Stock system, and when not to use it.
- Properties of ionic compounds

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General Knowledge

- I don't expect you to know any "common" (e.g., ammonia, water, ferric chloride, ferrous chloride) names, but you should be able to determine the systematic chemical name from the formula (and vice versa) for a wide variety of ionic and covalent compounds.
- Know which elements occur naturally as diatomic molecules. A mnemonic: "Have no fear of ice cold beer." (H, N, F, O, I, Cl, Br)
- Memorize first 36 element names and symbols. Know which name goes with which symbol, and vice versa. That's all.

Binary compounds = compounds with only two elements: Also called simple ionic compounds or simple covalent compounds.

- Binary Covalent - Two nonmetals - Use prefixes in names of these.
- Binary Ionic - Metal and nonmetal - No prefixes in names of these!
    - Predicting charges on certain simple ions (Groups IA, IIA; Al, Ga, Ag, Zn; nonmetals in Groups IVA, VA, VIA, and VIIA)
    - A simple ion is just one element, with a charge. (Opposite is polyatomic ion.)

The Stock system is used for transition metals and most of the main group (representative) elements left of the semi-metals (metalloids). The Roman numeral represents the charge on the metal ion.

- Use the Stock system for all metals except alkali metals (+1), alkaline earth metals (+2), and Al (+3), Ga (+3), Zn (+2), and Ag (+1).
- Know how to determine which Roman numeral to use based on the molecular formula or the charge on the ion.
- Which metals have more than one possible ionic charge? (Everything except...)
- Which metals have only one possible ionic charge?
- The old names of metal ions (like ferric and cuprous) are nice to know, but not required for this course.

Ionic Compounds – Polyatomic ions:

- Nomenclature – Naming complex ionic compounds
- Table of "-ates" (know the pattern)
- Know how to write a table of "-ites" or table of "per-…-ates" or table of "hypo-…ites"
- Common endings and prefixes: "per-…-ate" "…-ate" "…-ite" "hypo-…-ite" (know the pattern)
- Common ions not fitting these patterns
- Putting ions together – charge balance
- Names from formulas
- Formulas from names

Covalent compounds

- Two nonmetals
- Shared electrons
- No charges on atoms
- First element is the least electronegative (most metallic character) element. This is the one that's closest to the bottom or left of the periodic table.
- Use prefixes for number of atoms of each element in compound
- Omit "mono-" on first element in name
- Prefixes are:
    - Mono-
    - Di-
    - Tri-
    - Tetra-
    - Penta-
    - Hexa-
    - Hepta-
    - Octa-
    - Nona-
    - Deca-