

Chapter 8  
**Aqueous Solutions: Chemistry of the Hydrosphere**  
Learning Objectives

8.2.2020

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To satisfy the minimum requirements for this course, you should be able to:

1. Define parts per million (ppm) and molarity
2. Apply your understanding of the properties of aqueous solutions to:
  - identify the solvent and solute(s) in a solution
  - predict whether a substance is a strong electrolyte, weak electrolyte, or nonelectrolyte
  - write balanced chemical equations for the dissolving of molecular compounds, ionic compounds, and acids and bases in water
3. Perform the following calculations involving concentration:
  - calculate the molarity, solution volume, or number of moles of solute given any two of these quantities
  - dilution calculations
  - stoichiometric calculations for reactions in aqueous solutions, i.e. titration calculations
4. Recognize acid-base reactions and be able to:
  - define Brønsted acids and bases
  - explain the differences between strong and weak acids, and between strong and weak bases
5. Write balanced chemical, complete ionic, and net ionic equations for precipitation reactions and identify spectator ions
6. Recognize precipitation reactions and use solubility rules (see the General Chemistry Reference Sheet and Table 8.4 in the textbook) to predict when a precipitation reaction is likely to occur.
7. Explain what is meant by the terms saturated, unsaturated and supersaturated.

**N.B. Section 8.7 (Oxidation-Reduction Reactions) will be covered in SC112**