

UNIT 5 SOLUTIONS AND THEIR BEHAVIORS

Textbook References: *Chemistry* Zumdahl 5th Edition Chapter 11

1. determine a solutions molarity, molality, mole fraction, and percent by mass (concentrations)
2. describe types of solutions
3. describe the three steps in solution formation
4. describe how temperature and pressure affect a solid/ liquid, liquid/liquid or gas/liquid solution
5. describe the effect of a solute on the solvents vapor pressure, boiling point and freezing point (colligative properties)
6. use Raoult'
7. determine the change in vapor pressure, boiling point, freezing point or osmotic pressure for a solution with a non-electrolyte or an electrolyte solute
8. use colligative property relationships to determine the molar mass of a solute
9. State solubility rules

Vocabulary:

solution	osmotic pressure	solubility
solute	saturated	soluble
solvent	unsaturated	colloid
colligative properties	super saturated	Raoult's law
Le Chatelier principle	concentrated	
osmosis	dilute	

AP Course Guide correlation:

- II. States of Matter
- C. Solutions
 1. Types of solutions and factors affecting solubility
 2. Methods of expressing concentration (use of normality is not tested)
 3. Raoult's law and colligative properties (nonvolatile solutes); osmosis
 4. Non-ideal behavior (qualitative aspects)

IB course Outline correlations

- 1.5.1 Distinguish between the terms *solute*, *solvent*, *solution* and *concentration* (g dm^{-3} and mol dm^{-3}).
- 1.5.2 Solve problems involving concentration, amount of solute and volume of solution.