

## Chemistry Unit 7 Outline: Gases and Solutions

### Chapter 12: Gases

Classes	Topics	Suggested Reading	✓	Assignments	✓
1	Properties of Gases, Pressure (kPa, atm, mmHg and torr), Barometer, Standard Atmospheric Pressure, Kinetic Molecular Theory of Gases	12.1 Characteristics of Gases (pg. 416 – 422)		pg. 421 #1 to 3 (Practice); pg. 422 #1 to 13	
2	Variables of a Gas ( $V, P, T, n$ ), Boyle's Law ( $P & V$ ), Temperature (K), Charles's Law ( $T & V$ ), Gay-Lussac's Law ( $P & T$ ), Avogadro's Law, Combined Gas Law ( $\frac{PV_1}{n_1T_1} = \frac{PV_2}{n_2T_2}$ )	12.2 The Gas Laws (pg. 423 – 432)		pg. 425 #1 to 4 (Practice); pg. 428 #1 to 4 (Practice); pg. 431 #1 to 3 (Practice); pg. 432 #1 to 12	
3 & 4	Ideal Gas, Ideal Gas Law ( $PV = nRT$ ), Ideal Gas Constant [ $R = 8.314 \text{ (L} \cdot \text{kPa)/(K} \cdot \text{mol)} = 0.0821 \text{ (L} \cdot \text{atm)/(K} \cdot \text{mol)}$ ], STP and SATP, Gas Stoichiometry, Dalton's Law of Partial Pressure, Graham's Law of Effusion, Diffusion, Departure from Ideal Gas Law, Real Gases	12.3 Molecular Composition of Gases (pg. 433 – 442)		pg. 435 #1 to 4 (Practice); pg. 438 #1 to 4 (Practice); pg. 442 #1 to 3 (Practice); pg. 442 #1 to 14	
5	<b>Activity #5: What's the Matter with Your Gases? And Lab #7: Ideal Gas Law</b> (A Block: May 3, Tuesday) (F Block: May 4, Wednesday) (G Block: May 5, Thursday)			<i>Activity #5 &amp; Lab #7 Report Due: (May 13, Friday)</i>	
	<b>Chapter 12 Take-Home Quiz Assign</b> (A Block: May 2, Monday) (F & G Blocks: May 3, Tuesday)			<b>Chapter 12 Take-Home Quiz Due:</b> (A Block: May 5, Thurs) (F & G Blocks: May 6, Fri)	

### Chapter 13: Solutions

Classes	Topics	Suggested Reading	✓	Assignments	✓
1	Solution, Suspension, Solvents and Solutes, Colloid, Methods of Separating Mixtures (Filtration, Distillation, Chromatography), Concentration, Parts Per Million (ppm), Molarity ( $C = \frac{n}{V}$ ), Preparing a Solution, Volumetric Flask, Solution Stoichiometry	13.1 What is Solution? (pg. 454 – 459) 13.2 Concentration and Molarity (pg. 460 – 467)		pg. 459 #1 to 12 pg. 461 #1 to 7 (Practice); pg. 465 #1 to 7 (Practice); pg. 467 #1 to 3 (Practice); pg. 467 #1 to 14	
2	Dilution ( $C_1V_1 = C_2V_2$ ), Solubility, "Like-Dissolves-Like", Miscible and Immiscible, Solubilities of Solid Compounds, Factors affecting Solubility, Dissociation and Hydration, Saturated, Unsaturated and Supersaturated Solutions, Dissolving Gas in Liquids, Factors affecting Gas Solubility, Henry's Law	13.3 Solubility and the Dissolving Process (pg. 468 – 471)		Worksheet: Solubility and Dilution	
3	Conductivity, Electrolyte and Non-electrolyte, Weak and Strong Electrolytes, Colligative Properties (Freezing Point Depression and Boiling Point Elevation), Surfactant, Detergent, Soap, Emulsion & Emulsifying Agent, Hard Water and Water Softener	13.4 Physical Properties of Solution (pg. 478 – 486)		pg. 486 #1 to 15	
4	<b>Unit 7 Test</b> (A Block: May 19, Thursday) (F & G Blocks: May 20, Friday)	Chapter 13 Review (Unit 7 Sample Questions)		(Optional) pg. 488–491 #1, 5 to 8, 12, 13, 17, 18, 20 to 24, 27 to 34, 37 to 51 (odd), 52 to 54, 67 to 72	
	<b>Seniors Chemistry Final Exam (May 13, Friday) – covers Units 3, 5, 6 and Chapter 12</b>				