

Chemistry ([Distant Learning](#)) Unit 6 Outline: Thermochemistry, States of Matter & Intermolecular Forces

Chapter 10: Causes of Change

Must Do Underlined HW Questions

*Green Fonts - *Asynchronous*

*Blue Fonts - **Optional Video Lessons*

Wk/Class	Topics	Suggested Reading	✓	Assignments	✓
Mar 1 / Day 1	Energy, Thermodynamics. Radiant Energy, Thermal Energy, Chemical Potential Energy, Potential Energy, Heat (q), Work (w), Internal Energy (E), $\Delta E = q + w$, $w = -P\Delta V$ (only conceptual understanding – no calculations), Enthalpy (Heat without Work), Physical Change (Kinetic vs. Potential), Heat Units (Joules and Calories), Specific Heat (c_p), Molar Heat Capacity (C), Physical Kinetic Change ($q = mc_p\Delta T$ and $q = nC\Delta T$), Relationship between c_p and C	10.1: Energy Transfer (pg. 338 to 344) <i>[10-1 Video Lesson – 41:25]</i>		pg. 342 #1 to 4 (Practice) ; pg. 344 #3 to 19	
Mar 1 / Day 2	Systems versus Surroundings, Open System, Closed System, Isolated System, Reaction Pathway, Change in Enthalpy ($\Delta H = q$), Energy Diagram, Endothermic and Exothermic Change in Enthalpy ($\Delta H < 0$ Exothermic, $\Delta H > 0$ Endothermic), Molar Enthalpy for Kinetic Change ($\Delta H = C\Delta T$)	10.2: Using Enthalpy (pg. 345 to 349) <i>[10-2 Video Lesson – 25:23]</i>		pg. 346 #1 to 3 (Practice) ; pg. 347 #1 to 3 (Practice) ; pg. 349 #2 to 10	
Mar 8 / Day 2	Standard State, Standard Molar Enthalpy of Formation (ΔH_f°), $\Delta H = n\Delta H_f^\circ$, Standard Molar Enthalpy of Reaction and Combustion (ΔH_{rxn} and ΔH_{comb}), $\Delta H = n\Delta H_{rxn}$ and $\Delta H = n\Delta H_{comb}$, Hess's Law (Adding ΔH), Theoretical Molar Enthalpy of Reaction ($\Delta H_{rxn} = \sum H_{products} - \sum H_{reactants}$) – Direct Method to Calculate ΔH_{rxn}	10.3: Changes in Enthalpy During Chemical Reactions (pg. 350 to 357) <i>[10-3A Video Lesson – 67:56]</i>		pg. 356 #1 & 2 (Practice) ; pg. 357 #1 & 2 (Practice)	
Mar 15 / Day 1	Law of Conservation of Energy (First Law of Thermodynamics), Physical and Chemical Calorimetry (Heat Gained = Heat Lost) using Constant-Volume Calorimeter (Bomb Calorimeter) or Constant-Pressure Calorimeter (Styrofoam Calorimeter), Calculating Experimental ΔH_{rxn}	10.3: Changes in Enthalpy During Chemical Reactions (pg. 350 to 357) <i>[10-3B Video Lesson – 55:58]</i>		pg. 357 #2, 4 to 7 Worksheet: ΔH, Hess's Law and Calorimetry	
Mar 15 / Day 2	Lab #6: Calorimetry and Heat of Combustion (C Block: March 18, Thursday) (F & G Blocks: March 19, Friday)	Lab #6 Handout <i>[Lab #6 Video – 25:41]</i>		Lab Report #6 Due: (C Block: March 31, Wed) (F & G Blocks: Apr 1, Thurs)	
	Chapter 10 Take-Home Quiz (C Block: March 22, Monday) (F & G Blocks: March 23, Tuesday)	Ch 10 Review (Optional) pg. 370-372 #22 to 29, 36, 38, 40 and 43		Ch 10 Take-Home Quiz Due: (C Block: March 25, Thurs) (F & G Blocks: Mar 26, Fri)	

Chapter 11: States of Matter and Intermolecular Forces

Wk/Class	Topics	Suggested Reading	✓	Assignments	✓
Mar 22 / Day 1	States of Matter, Molecular Views and Kinetic Molecular Theory of Solids, Liquids and Gases, Surface Tension, Phase Changes (Evaporation, Condensation, Freezing, Melting, Sublimation and Deposition), Boiling Point and Melting Point, Heating Curve, Intermolecular Forces, van der Waals Forces (Dipole-Dipole Forces, London Dispersion Forces), Ion-Dipole Forces, Hydrogen Bonding, Properties of Covalent Crystalline Solids and Molecular Crystalline Solids	11.1: States and State Changes (pg. 378 to 384) 11.2: Intermolecular Forces (pg. 385 to 392) <i>[11-1 & 11-2 Video Lesson – 41:11]</i>		pg. 384 #1 to 7, 11 to 13 pg. 392 #1 to 8, 10 and 11	
Mar 22 / Day 2	Equilibrium, Vapour Pressure, Vapour Pressure versus Temperature, Gas-Liquid Equilibrium, Liquid-Solid Equilibrium, Solid-Vapour Equilibrium and Sublimation, Phase Diagrams, Critical Point, Triple Point	11.4: Phase Equilibrium (pg. 399 to 405) <i>[11-4 Video Lesson – 42:43]</i>		pg. 404 (Practice) #1 ; pg. 405 #1 to 10	
	Unit 6 Test (C Block: April 19, Monday) (F & G Blocks: April 20, Tuesday)	Unit 6 Practice Test		(Optional) Chapter 11 Review: pg. 408-411 #9 to 20, 31 to 36, 45 to 47, 53, 60 to 65 (all odds)	