

AP Chemistry 2015-2016 Curriculum

# of Classes	Unit	Kotz, 4th	Lesson	AP Chemistry - Essential Knowledge	AP Chemistry - Learning Objectives	AP Chemistry Labs
10	1 - Reactions (Ch 5, 14)	1, 3, 5, 14	1.1 Review Sig Figs, Dim Analysis, Moles, Solubility, Concentration, Spectrophotometry	1.A.3, 2.A.3	1.4, 1.16, 2.8, 2.9, 2.14, 2.15, 6.24	Investigations 1, 2
		4, 5	1.2 Review Types of Reactions, Stoichiometry, Chemical Analysis	1.E.1, 1.E.2, 3.A.1, 3.A.2, 3.B.1, 3.C.1?	1.17, 1.18, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.10	Investigations 7, 9
		5, 6	1.3 Energetics of Reactions	5.C.1, 5.C.2	3.11, 5.8, 5.9, 5.10	
		5	1.4 Redox Reactions	3.B.3	3.8	Investigation 8
		5	1.5 Titrations and Gravimetric Analysis	(1.E.2)	1.19, 1.20, 3.9	Investigations 3, 4
6	2 - Kinetics (Ch 15)	15	2.1 Review Rates, Rate Laws	4.A.1, 4.A.2, 4.A.3, 4.B.2, 4.B.3, 4.D.1, 4.D.2	4.1, 4.5, 4.6, 4.8, 4.9, (5.2), (5.3)	Investigations 10, 11
		15	2.2 Review Mechanisms	4.B.1, 4.C.1, 4.C.2, 4.C.3	4.4, 4.7	
		15	2.3 Integrated Rate Laws	(4.A.2?)	4.2, 4.3	
6	3 - Equilibrium (Ch 16, 19)	16	3.1 Review Equilibrium Constant, Q	6.A.1, 6.A.2, 6.A.3, 6.A.4	6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7	
		16	3.2 Review Le Chatelier's Principle	6.B.1, 6.B.2	6.8, 6.9, 6.10	Investigation 13
		19	3.3 Solubility Equilibrium (K_{sp})	6.C.3	6.21, 6.22, 6.23	
6	4 - Acid Base Solutions (Ch 17)	17	4.1 Review Acids and Bases	6.C.2	2.2, 3.7, 6.12, 6.14	
		17	4.2 Review Weak Acid/Base Equilibria (K _a , K _b)	3.B.2, 6.C.1	6.11, 6.15, 6.16, 6.19	
		18	4.3 Buffers	(6.C.2)	6.18, 6.20	Investigations 15, 16
6	5 - Acid Base Reactions (Ch 18)	18	5.1 Acid/Base Reactions	(6.C.1)	6.17	
		18	5.2 Titrations	(6.C.1)	13	Investigation 14
6	6 - Thermodynamics (Ch 6, 20)	6	6.1 Review Heat and Enthalpy	3.C.2, 5.A.1, 5.A.2, 5.A.3, 5.B.1, 5.B.2, 5.B.3, 5.B.4	5.4, 5.5, 5.6, 5.7	Investigation 12
		20	6.2 Review Entropy and Free Energy	5.E.1, 5.E.2, 5.E.3, 5.E.5	5.12, 5.13, 5.14	
		20	6.3 Equilibrium and Thermodynamics	6.D.1	5.16, 5.17, 5.18, 6.25	
6	7 - Electrochemistry (Ch 21)	21	7.1 Galvanic Cells	3.C.3	3.12, 3.13	
		21	7.2 Electrolysis	5.E.4	5.15	
		21	7.3 Equilibrium/Thermodynamics/Electrochemistry (Nernst)	(3.C.3)		
6	8 - Atomic Theory (Ch 7, 8)	2	8.1 Review Structure of Atom, Periodic Table, Mass Spectroscopy	1.A.1, 1.A.2, 1.D.2?	1.1, 1.2, 1.3, 1.14	
		7	8.2 Review Quantum Model of Atom, PES	1.B.1, 1.C.2, 1.D.1, 1.D.3?	1.5, 1.6, 1.7, 1.8, 1.12, 1.13	
		7	8.2 Review Electron Configurations	1.B.2		
		8	8.3 Review Periodic Trends	1.C.1	1.9, 1.10, 1.11	
6	9 - Molecular Theory (Ch 9, 10)	9	9.1 Covalent Bonding - Energetics	2.C.1	2.17, 2.18, 5.1	
		9	9.2 Review Lewis Structures + UV/IR Spectroscopy	2.C.4	1.15	
		10	9.3 Review Shapes and Polarity	(2.C.4)	2.21	
		10	9.4 MO Theory	(2.C.4)		
6	10 - States of Matter (Ch 12, 13)	13	10.1 Properties of Substances and Interparticle Forces, Chromatography	2.A.1, 2.B.1, 2.B.2, 2.B.3, 5.D.1, 5.D.2	2.1, 2.7, 2.10, 2.16, (5.1)	Investigation 5
		13	10.2 IMFs and Molecular Structure	5.D.3	2.11, 2.13, 5.11	
		13	10.3 Review Types and Properties of Solids	2.C.2, 2.C.3, 2.D.1, 2.D.2, 2.D.3, 2.D.4	2.3, 2.19, 2.20, 2.22-32	Investigation 6
		12	10.4 Review Gases	2.A.2	2.4, 2.5, 2.6, 2.12, 5.2	

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Bolded lessons are those not covered (or covered briefly) in Honors Chemistry.

Review lessons are a quick refresher of topics covered over 2 or 3 lessons in Honors Chemistry, involving more complex problem solving and in-depth laboratory investigations.

Items in parentheses indicate statements that are covered partially by that lesson.

Investigations correspond to College Board's *AP Chemistry Guided Inquiry Experiments*

(Aim to finish by Spring break)

(Semester 1: Units 1-5
Semester 2: Units 6-10)