Edvantage Science AP Chemistry 2

Chapter 2

Traffic Light Study Guide

Section	Page	I can ...	Red	Amber	Green
2.1	98 - 99	Define *chemical equilibrium* and determine equivalent reaction rates at equilibrium.	○	○	○
	99 - 100	State the criteria for a system to be at chemical equilibrium.	○	○	○
	101	Describe how chemical equilibria are achieved.	○	○	○
2.2	108	State *Le Chatelier's principle*.	○	○	○
	108 - 109	Use Le Chatelier's principle to describe how an equilibrium system will respond to adding or removing, some reactant or product.	○	○	○
	111 - 112	Explain in terms of forward and reverse reaction rates how an equilibrium will respond to adding or removing, reactant or product.	○	○	○
	113	Describe and explain how changing the surface area of a heterogeneous reaction or adding a catalyst affects an equilibrium.	○	○	○
	113	Define *equilibrium position*.	○	○	○
2.3	120 - 122	Use Le Chatelier's principle to describe how an equilibrium system will respond to changing its volume.	○	○	○
	123 - 124	Explain in terms of forward and reverse reaction rates how an equilibrium system will respond to changing its volume.	○	○	○
	125 - 126	Use Le Chatelier's principle to describe how an equilibrium system will respond to changing its temperature.	○	○	○
	127 - 128	Explain in terms of forward and reverse reaction rates how an equilibrium shifts in response to changing temperature.	○	○	○
	129 - 130	Describe the Haber-Bosch Process and discuss how chemists regulate its reacting conditions to optimize its production rate.	○	○	○
2.4	138	Define *entropy*.	○	○	○
	138 - 139	Describe some factors that influence a particle's or compound's entropy.	○	○	○
	139 - 141	Predict whether entropy increases or decreases during certain reactions by using factors that commonly govern entropy change.	○	○	○
	142	Cite the two thermodynamic "drives" that determine an equilibrium's position (far left, somewhat centered, far right)	○	○	○
	142 - 144	Predict an equilibrium's position from its thermodynamics and vice-versa.	○	○	○
	145	Define a *spontaneous* process and relate that to chemical equilibrium	○	○	○

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2.5	150	State the *equilibrium law* and determine a reaction's equilibrium constant (K_{eq}) from its equilibrium concentrations.	○	○	○
	151 - 152	Relate a reaction's equilibrium constant to its equilibrium position.	○	○	○
	152	State the only change of conditions that will change a chemical equation's equilibrium constant.	○	○	○
	153	Determine the equilibrium expression for a chemical equation.	○	○	○
	154	Determine the equilibrium constant for a chemical equation given the equilibrium constant for the reverse equation or the same equation with different coefficients.	○	○	○
	155	Determine the direction a system will proceed to achieve equilibrium, given its reactant and product concentrations and its K_{eq}.	○	○	○
	156 - 157	Recognize equilibria that do not strictly abide by Le Chatelier's principle.	○	○	○
2.6	163 - 164	Calculate a reaction's equilibrium constant, given the initial concentrations of the reactants and any one reactant's or product's equilibrium concentration.	○	○	○
	165 - 167	Calculate a reaction's equilibrium concentrations, given its equilibrium constant and the initial concentrations of its reactants.	○	○	○
	169	Calculate a reaction's initial concentrations, given its equilibrium constant and any one reactant's or product's equilibrium concentration.	○	○	○
	171 - 172	Calculate K_p for a gaseous equilibrium, given the partial pressures of its reactants and products at equilibrium or given its K_c.	○	○	○