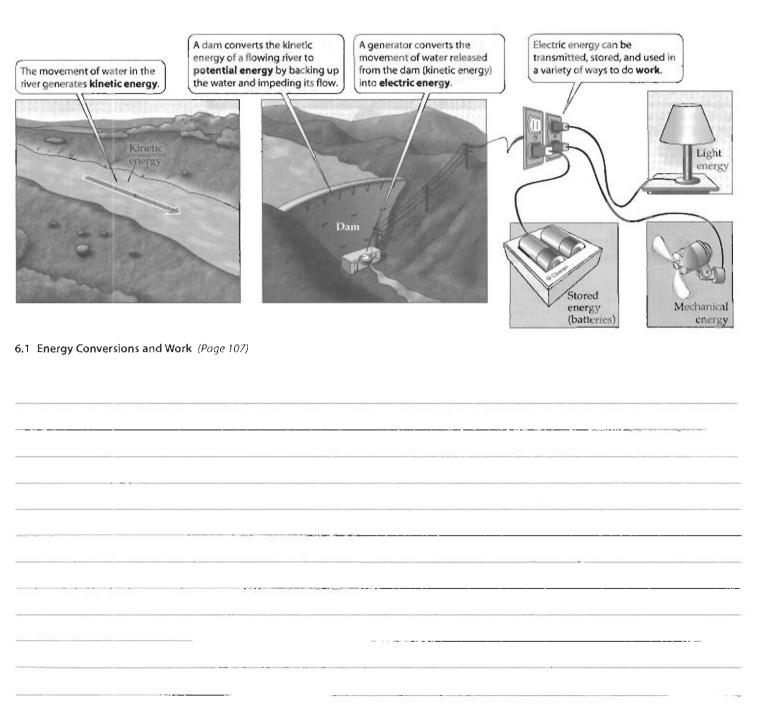
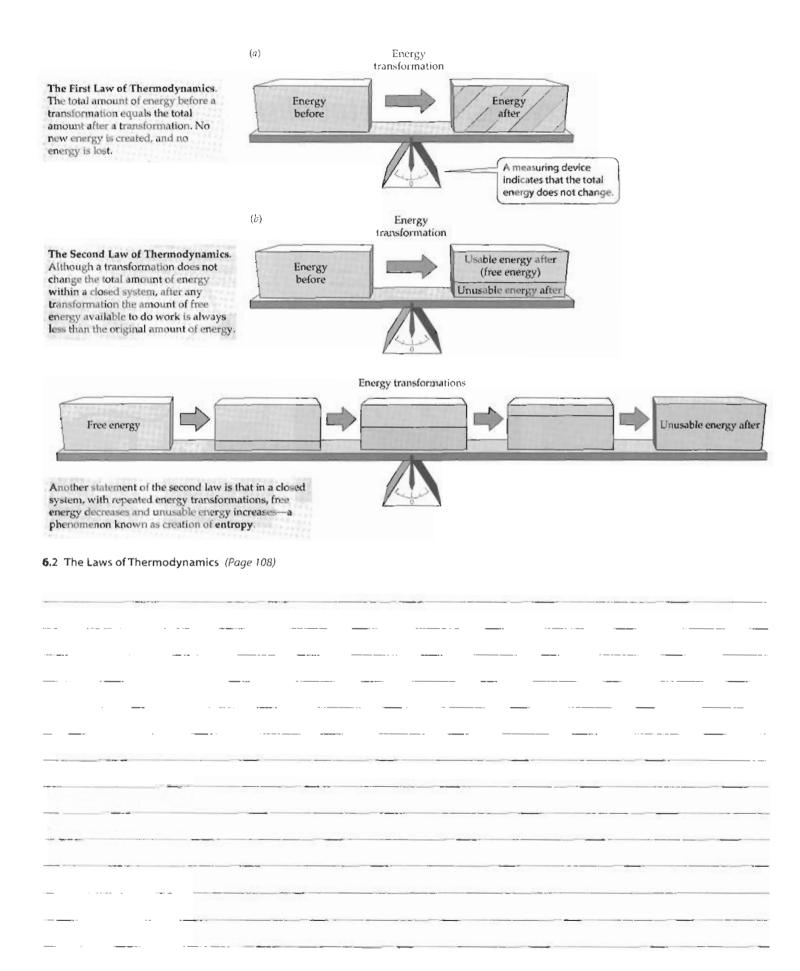
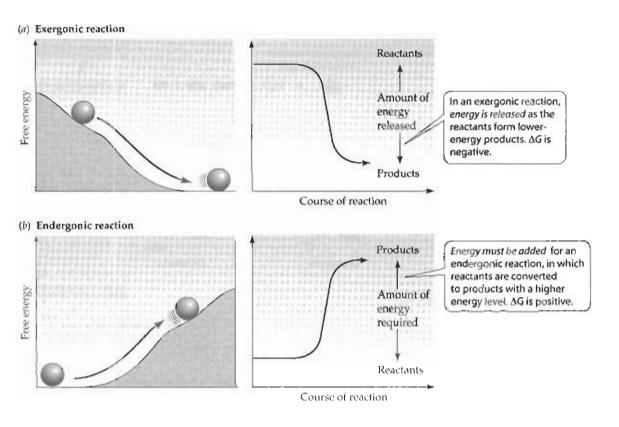
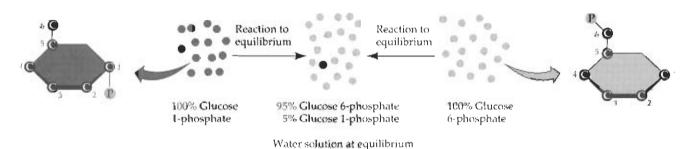
6 Energy, Enzymes, and Metabolism





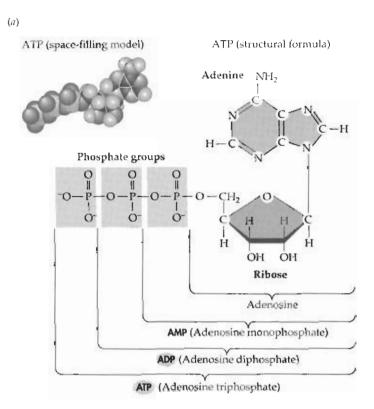


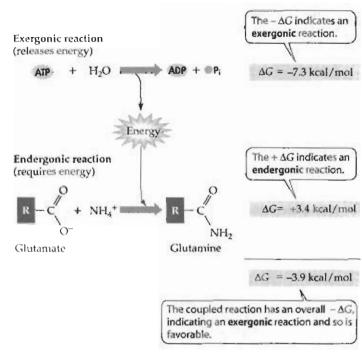
6.3 Exergonic and Endergonic Reactions (Page 110)



6.4 Concentration at Equilibrium (Page 111)

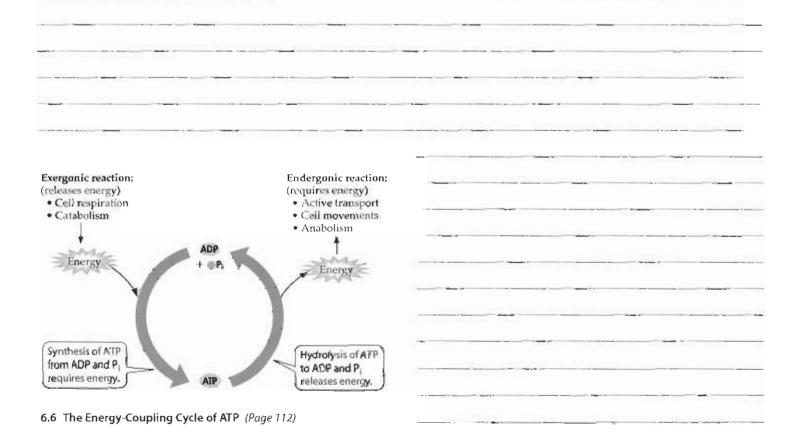
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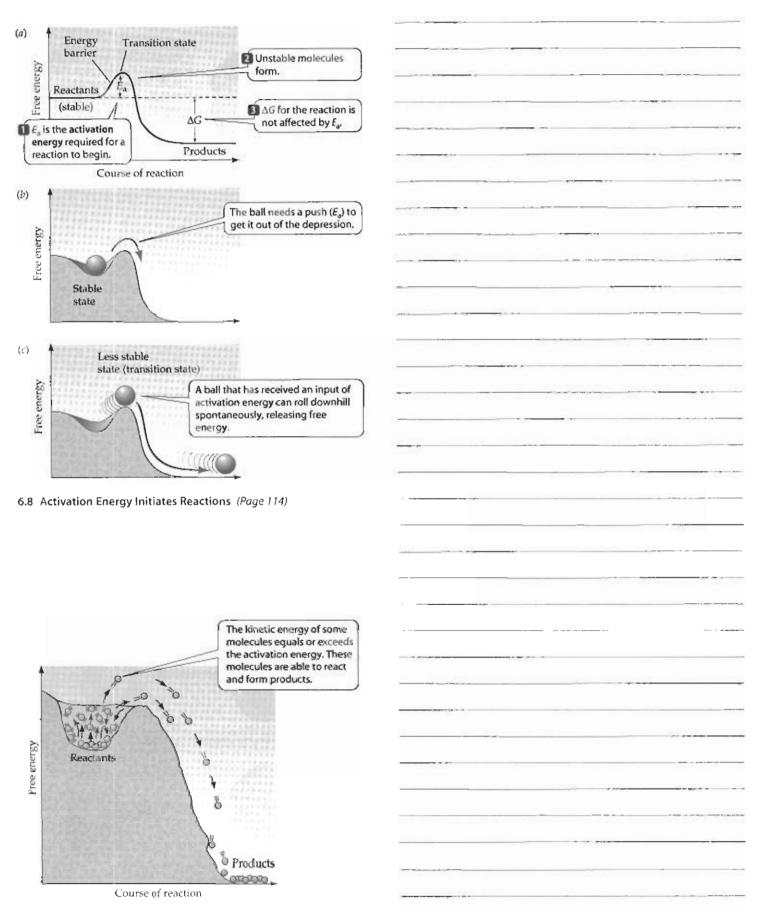




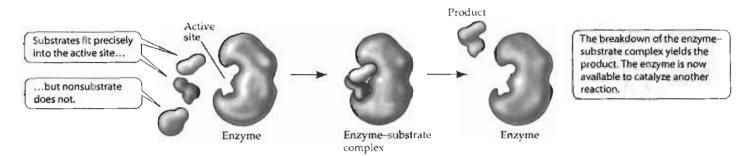
6.7 Coupling ATP Hydrolysis to an Endergonic Reaction (Page 113)

6.5 ATP (Page 112)

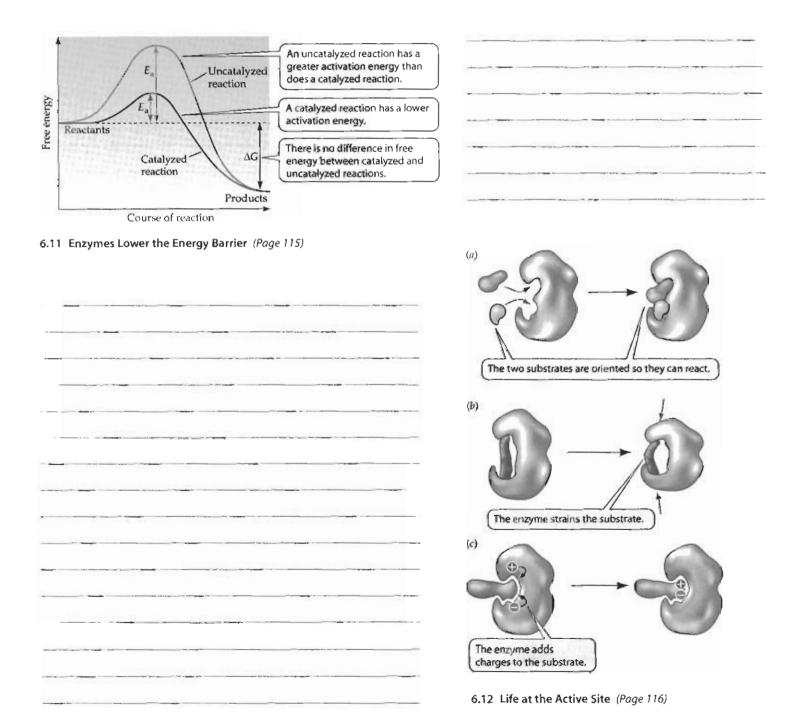


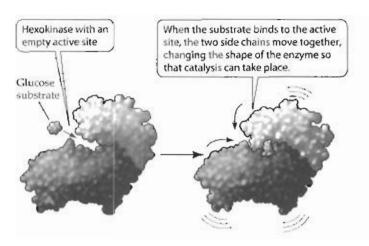


6.9 Over the Energy Barrier (Page 114)



6.10 Enzyme and Substrate (Page 115)



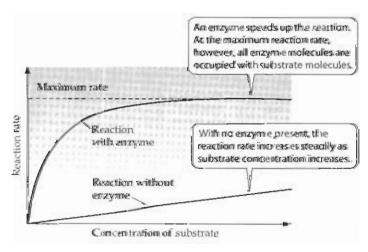


6.14 Some Enzymes Change Shape When Substrate Binds to Them (Page 117)

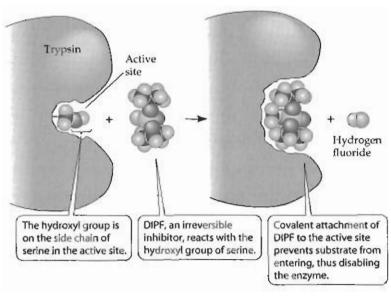
A Few Examples of Nonprotein "Partners" of Enzymes

TYPE OF MOLECULE	ROLE IN CATALYZED REACTIONS	
Cofactors		
Iron (Fe ²⁺ or Fe ³⁺)	Oxidation/reduction	
Copper (Cu ⁺ or Cu ²)	Oxidation/reduction	
Z inc (Zn^{2+})	Helps bind NAD	
Coenzymes		
Biotin	Carries —COO-	
Coenzyme A	Carries — CH2—CH3	
NAD	Carries electrons	
FAD	Carries electrons	
ATP	Provides/extracts energy	
Prosthetic groups		
Heme	Binds ions, O ₂ , and electrons; contains iron cofactor	
Flavin	Binds electrons	
Retinal	Converts light energy	

(Page 118)

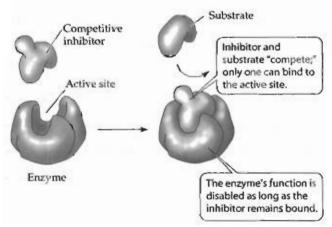


6.16 Catalyzed Reactions Reach a Maximum Rate (Page 118)

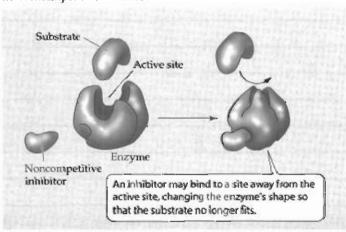


6.17 Irreversible Inhibition (Page 119)

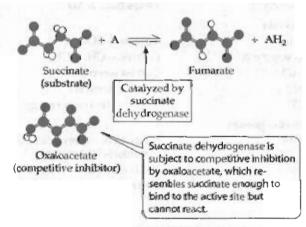
(a) Competitive inhibition



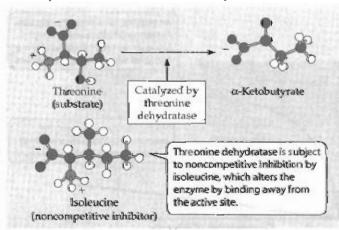
(b) Noncompetitive inhibition

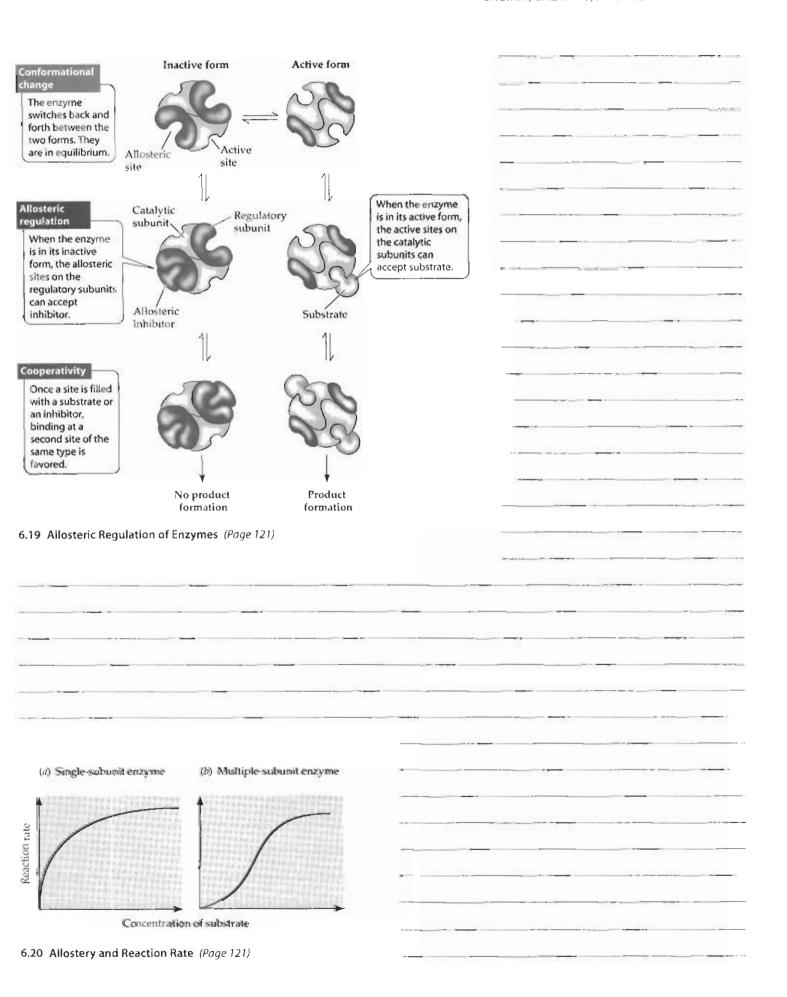


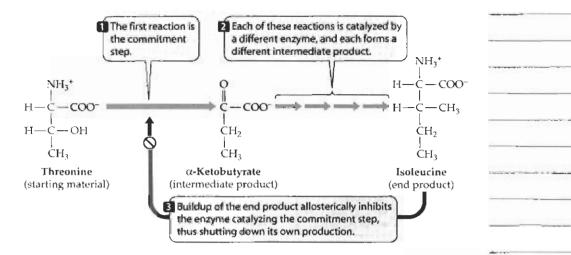
Competitive inhibition of succinate dehydrogenase



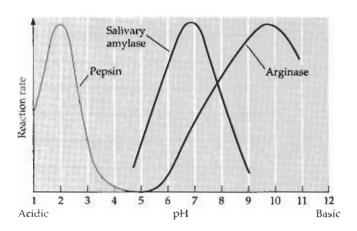
Noncompetitive inhibition of threonine dehydratase







6.21 Inhibition of Metabolic Pathways (Page 122)



6.22 pH Affects Enzyme Activity (Page 122)

