

Course	Unit	Chapter	Lesson			
Biochemistry	Carbohydrates	Carbohydrates Overview	Candy Kingdom Mind Map ATP and Energy Storage Molecules			
		Carbohydrate Structure and Function	Carbohydrates Classification Carbohydrate Stereochemistry			
		Carbohydrate Metabolism, Part 1	Glycolysis: Investment Phase Glycolysis: Payoff Phase Fates of Pyruvate			
		Aerobic Respiration	Pyruvate Oxidation (Acetyl CoA) TCA Cycle Electron Transport Chain and Oxidative Phosphorylation Malate-Aspartate and Glycerol-Phosphate Shuttles MCAT Walkthrough: Aerobic Metabolism Part 1 - The Passage MCAT Walkthrough: Aerobic Metabolism Part 2 - The Questions			
		Carbohydrate Metabolism, Part 2	Gluconeogenesis Glycogen Synthesis and Glycogenolysis Pentose Phosphate Pathway Fermentation			
		Carbohydrates (Supplemental)	Malate-Aspartate and Glycerol-Phosphate Shuttles Cori and Cahill Cycles Galactose Metabolism Fructose and Sorbitol Metabolism			
		Lipids	Lipids Overview	"SketchyLand Food Court" Mind Map		
			Lipid Structure and Function	Structural Lipids Signaling Lipids Storage Lipids MCAT Walkthrough: Lipid Structure and Function - Passage MCAT Walkthrough: Lipid Structure and Function - Questions		
			Lipid Metabolism	Lipid Digestion and Absorption Lipid Transport Cholesterol Biosynthesis (Sources, Specific Enzymes) Fatty Acid Synthesis Triglyceride Catabolism, Beta Oxidation of Even Chain Fatty Acids Beta Oxidation of Odd Chain Fatty Acids Ketone Bodies		
			Nucleic Acids Overview	"SketchyLand EPNOT Center" Mind Map		
			Nucleic Acids Structure and Function	DNA Structure and Function RNA Structure and Function		
			Eukaryotic and Prokaryotic DNA	Eukaryotic Chromosomal Organization and Regulation DNA Replication Prokaryotic DNA, Regulation, and Operons DNA Mutations DNA Repair Mechanisms		
	Proteins	Transcription and Translation	Transcription and RNA Processing Translation (Protein Synthesis)			
		Recombinant DNA and Biotechnology	Recombinant DNA Compass Blotting Genomic and cDNA Libraries Biotechnology			
		Proteins Overview	"SketchyLand Amino Island" Mind Map			
		Amino Acids and Protein Structure	Amino Acids Acid-Base Chemistry of Amino Acids Peptide Bond Formation and Hydrolysis Protein Structure and Function			
		Enzymatic Protein Function	Introduction to Enzymes Enzyme Parameters and Michaelis-Menten Plots Reversible Inhibition and Lineweaver-Burk Plots Cooperativity (Kinetics) Classification of Enzymes and Required Molecules			
		Non-Enzymatic Protein Function	Non-Enzymatic Proteins Biosignaling			
		Protein Isolation and Analysis	Protein Isolation Protein Analysis Techniques			
		Proteins (Supplemental)	Protein Catabolism			
		Metabolic Regulation	Metabolic States Introduction to Metabolic States and Regulation Specific Regulatory Pathways Body Mass Regulation Glycolysis Regulation Glycogen Regulation			
		Cell Biology	Eukaryotic Cells	Cell Structure and Function	The Nucleus, Ribosomes, and Mitochondria The Endoplasmic Reticulum, Vesicles, and the Golgi Apparatus Lysosomes and Peroxisomes The Cytoskeleton Cell Membrane Structure Transport Across Cell Membranes	
				Cell Cycle and Division	The Cell Cycle Mitosis Meiosis Nondisjunction	
				Reproduction and Development	Spermatogenesis Oogenesis Cell Specialization Differentiation and Germ Cell Lineages	
	Fundamentals of Genetics			Genetic Lingo Patterns of Dominance Recombination and Linkage Punnet Squares and Monohybrid Crosses Dihybrid Crosses X-Linked Traits		
	Natural Selection			Introduction to Evolution Evolution by Natural Selection Types of Selection		
	Speciation and Diversity			Patterns of Evolution Reproductive Isolation Rates of Speciation		
	Genetics & Evolution		Population Genetics	Sources of Genetic Variation Loss of Genetic Variation Hardy-Weinberg Principle		
			Viral Structure and Function	Retrovirus Life Cycles		
			Systems Biology	Nervous & Musculoskeletal Systems	Organization of the Nervous System	Divisions of the Nervous System The Parasympathetic Nervous System The Sympathetic Nervous System
					Neuroanatomy	The Cerebrum Areas of the Cerebral Cortex The Cerebrum Subcortical Structures and the Limbic System
					Cell Structure and Function	Cells of the Nervous System Action Potentials Blood-Brain Barrier and Cerebrospinal Fluid Neurotransmitters
					Sensory Systems	Anatomy of the Eye The Retina and Phototransduction Visual Fields and Processing Anatomy of the Ear Audition Olfaction and Gustation
The Musculoskeletal System	Bone Structure and Composition Bone Formation and Repair Types of Muscle Anatomy of a Skeletal Muscle Fiber Excitation-Contraction Coupling Cross-Bridge Cycle Muscle Contraction Oxygen Debt and Fatigue Reflexes					
Hormone Synthesis and Mechanisms of Action	Hormone Synthesis, Secretion, and Regulation Steroid Hormones: Synthesis and Mechanisms Peptide Hormones: Synthesis and Mechanisms Amino-Acid-Derived Hormones: Synthesis and Mechanisms					
Endocrine System	Hypothalamic-Pituitary Axis	Hypothalamic-Pituitary Anatomy and Feedback Loops Anterior Lobe of the Pituitary Gland Posterior Lobe of the Pituitary Gland				
	Thyroid Hormones	Regulation and Actions of Thyroid Hormones Parathyroid Glands and Calcium Homeostasis				
	Adrenal Gland	Adrenal Cortex: Hormone Regulation and Action Adrenal Medulla: Hormone Regulation and Action				
	Endocrine Pancreas	Insulin Glucagon and Somatostatin				
	Pineal Gland and Nonglandular Endocrine Organs	Other Glandular and Nonglandular Hormones (Pineal Gland)				
	Lymphatic & Immune Systems	The Immune System Structures and Cell Types Immune Cell Lineages The Adaptive Immune System Humoral Immunity Cell-Mediated Immunity Major Histocompatibility Complex I (MHC class I), Major Histocompatibility Complex II (MHC class II), and Antigen-Presenting Cells (APCs) Antibody Structure and Function				
Cardiac & Pulmonary Systems	The Cardiovascular System	Clot Formation and Breakdown Cardiac Cycle Autonomic Regulation of Blood Pressure (Baroreceptor Reflex)				
	The Respiratory System	Breathing Cycle Lung Volumes and Capacities				
	Digestive System	Anatomy and Regulation Walk Through Digestive-System Anatomy Autonomic Regulation of Digestion (Enteric Plexuses) Digestion and Absorption of Biomolecules Mechanical and Chemical Digestion Absorption: Locations and Processes Accessory Organs and Secretions Liver, Bile, and Gallbladder Liver: Metabolism, Detoxification, Blood-Protein Synthesis				
	Excretory Systems	The Renal System Renal Anatomy Osmoregulation: Filtration, Secretion, and Reabsorption (Starling Forces) Nephron Function Blood Pressure Hormones (ADH and Aldosterone) Renin-Angiotensin-Aldosterone System				
	The Integumentary System	Skin Anatomy Thermoregulation at the Skin				

