AP© Biology RecAP SPEED REVIEW

Unit 1: Chemistry of Life 8-11%

❑ Polarity of water ❑ Hydrogen bonding ❑ Properties of water ❑ CHNOPS ❑ Carbohydrate structure & function	❑ Lipid structure & function ❑ Protein structure & function ❑ Nucleic Acid structure & function ❑ Dehydration synthesis & hydrolysis
Big Ideas	Energetics, Information Storage and Transmission, Systems Interactions
Science Practices	Concept Explanation, Visual Representations, Argumentation

Unit 2: Cell Structure and Function 10-13%

❑ Cell types ❑ Surface area to volume ratio ❑ Organelle structures & functions ❑ Endomembrane system ❑ Endosymbiosis theory	❑ Active vs. Passive Transport ❑ Concentration gradient ❑ Tonicity ❑ Water potential ❑ Endocytosis & exocytosis
Big Ideas	Evolution, Energetics, Systems Interactions
Skills	Concept Explanation, Visual Representation, Questions and Methods, Representing and Describing Data, Statistical Tests and Data Analysis, Argumentation

Unit 3: Cellular Energetics 12-16%

❑ Enzyme structure & function ❑ Activation energy & graphing ❑ Photosynthesis events ❑ Chloroplast structure & function ❑ Cellular respiration events	❑ Mitochondria structure & function ❑ ATP ❑ Fermentation ❑ Fitness
Big Ideas	Energetics, Systems Interactions
Science Practices	Concept Explanation, Questions and Methods, Representing and Describing Data, Argumentation

Unit 4: Cell Communication and Cell Cycle 10-15%

❑ Autocrine, paracrine, endocrine ❑ Signal transduction pathway events ❑ Phosphorylation ❑ Ligands ❑ Positive vs. Negative Feedback	❑ Homeostasis ❑ Interphase (G1, S, G2) ❑ Mitosis (PMAT) & Cytokinesis ❑ Chromosome structure ❑ Cell Cycle regulation
Big Ideas	Energetics, Information Storage and Transmission
Science Practices	Concept Explanation, Representing and Describing Data, Statistical Tests and Data Analysis, Argumentation

Unit 5: Heredity 8-11%

❑ Meiosis (PMAT I & PMAT II) ❑ Diploid vs. haploid ❑ Homologous chromosomes ❑ Independent assortment ❑ Chromosomal disorders ❑ Mendelian genetics	❑ Non-mendelian genetics ❑ Allele expressions ❑ Punnett Squares ❑ Probability rules ❑ Chi-square analysis
Big Ideas	Evolution, Information Storage and Transmission, Systems Interactions
Science Practices	Concept Explanation, Questions and Methods, Statistical Tests and Data Analysis, Argumentation

Unit 6: Gene Expression and Regulation 12-16%

❑ DNA vs. RNA structure & function ❑ Nitrogenous base pairings ❑ Semiconservative replication ❑ DNA polymerase ❑ DNA directionality ❑ Leading vs. lagging strands ❑ RNA polymerase	❑ mRNA processing ❑ Transcription vs. Translation ❑ Codon chart ❑ Mutations ❑ Prokaryotic vs. Eukaryotic gene regulation ❑ Biotechnology
Big Ideas	Information Storage and Transmission
Science Practices	Concept Explanation, Visual Representation, Questions and Methods, Argumentation

Unit 7: Natural Selection 13-20%

❑ Natural selection conditions ❑ Artificial selection ❑ Causes of evolution ❑ Hardy-Weinberg equilibrium ❑ Allele frequencies	❑ Evidence of evolution ❑ Speciation & Extinction ❑ Phylogenetic trees & cladograms ❑ Origin of life
Big Ideas	Evolution, Systems Interactions
Science Practices	Concept Explanation, Visual Representation, Questions and Methods, Representing and Describing Data, Statistical Tests and Data Analysis, Argumentation

Unit 8: Ecology 10-15%

❑ Communication strategies ❑ Food webs ❑ Trophic levels ❑ Autotroph vs. heterotroph ❑ Population growth limitations	❑ Simpson's diversity index ❑ Exponential vs. logistic growth ❑ Niche ❑ Community relationships ❑ Human impacts on ecosystems
Big Ideas	Evolution, Energetics, Information Storage and Transmission, Systems Interactions
Science Practices	Questions and Methods, Representing and Describing Data, Statistical Tests and Data Analysis, Argumentation