

Course Biology Units

Unit #	Unit Title	Essential Standard	Days	RBT Tag	Clarifying Objectives	Major Concepts	Notes	Honors Concepts
1	Ecology	2.1	10	Analyze, Understand	2.1.1	Flow of energy, cycling of materials,		
		2.1.2			Survival and reproductive adaptations, behavior Interactions & stability in ecosystems Populations and Carrying capacity			
		2.1.3						
		2.1.4						
		2.2		Understand	2.2.1 2.2.2	Human Impact Conservation		
		3.2		Understand	3.2.3	Environmental influence over gene expression		
		4.2		Analyze	4.2.1	Carbon Cycle		
2	Biochemistry	4.1	7	Understand	4.1.1	Structure and function of organic molecules Nucleic Acids & Protein Synthesis(Relationship) Enzymes		
		4.1.2						
		4.1.3						
		1.2		Analyze	1.2.1	pH and homeostasis (enzymes)		
		2.1		Analyze	2.1.1	Nitrogen cycle in relation to nucleic acids and protein		
3	Cells	1.1	15	Understand	1.1.1	Cell structure and function Prokaryotic vs. Eukaryotic Cell differentiation	Organelles Microscope use Stem cells, neurons, red blood cells	
		1.1.2						
		1.1.3						
		1.2		Analyze	1.2.1 1.2.2 1.2.3	Homeostasis Cell Cycle Unicellular adaptations	Transport, buffers, pH Cancer Cilia, cell wall, contractile vacuole, flagella, microvilli, pseudopodia, eyespots, cysts	

		3.1		Understand	3.1.1	Cancer, injury repair		
		3.4		Understand	3.4.1	Prokaryotic and Eukaryotic evolution	Endosymbiotic theory	
		4.2		Analyze	4.2.1 4.2.2	Metabolism (photosynthesis & respiration) Using ATP		
		3.2		Understand	3.2.1	Sexual reproduction (meiosis)	Nondisjunction, karyotyping	
		2.1		Analyze	2.1.2	Reproduction, growth & development Respiration and nutrition		
4	Molecular Genetics	3.1	15	Understand	3.1.1 3.1.2 3.1.3	Structure and function of DNA Protein synthesis (DNA→RNA→Protein→Trait) Mutations		
		1.1		Understand	1.1.1 1.1.2 1.1.3	How DNA controls all cell activities Comparison of Prokaryotic and Eukaryotic Gene expression		
		1.2		Analyze	1.2.2	Cell cycle , S phase, (DNA Replication)		
	Midterm		1					
5	Genetics	3.2	15	Understand	3.2.2 3.2.3	Inheritance patterns Environmental influence on phenotype	Dominance, codominance, incomplete dominance, multiple alleles, blood types, pedigree analysis, sickle cell anemia, cystic fibrosis, Huntingtons, hemophilia, color blindness, sex-linked, polygenic PKU, diabetes, heart disease, skin, lung and mouth cancer	
6	DNA Technology	3.3	4	Understand	3.3.1	Gel electrophoresis	General steps, restriction enzymes, DNA fingerprinting, identifying	

					3.3.2 3.3.3	Transgenic organisms, bacterial transformation Ethical issues	endangered species Insulin Cloning, stem cell research, Human Genome Project, genetically modified organisms, gene therapy – SCID, cystic fibrosis	
7	Evolution	3.4	5	Understand	3.4.1 3.4.2 3.4.3	Evidence for evolution Natural Selection Influence of various disease agents on natural selections	Fossils, biochemistry, anatomy, experiments used to suggest cell evolution, endosymbiosis, embryology Bacterial, virus, toxins, antibiotic resistance, immunity	
		2.1		Analyze	2.1.2 2.1.3 2.1.4	Reproductive adaptations Interaction with environment Evolution within a population	Types of natural selection Pfiesteria, AIDS, Dutch Elm disease, influenza, TB	
		3.1		Understand	3.1.3	Mutations→ change in function and phenotype		
		3.2		Understand	3.2.1	Role of sexual reproduction in genetic variation		
8	Diversity (Classification)	3.5	9	Analyze	3.5.1 3.5.2	History of classification Classification based on phylogeny	Eukaryotic kingdoms Dichotomous keys, phylogenetic tree	
		2.1		Analyze	2.1.2	Adaptations (including behavioral)	Structure and function	
		1.1		Understand	1.1.2	Prokaryotic vs. Eukaryotic	Endosymbiotic	
	Review and Exam		9					

