

**PRESCOTT UNIFIED SCHOOL DISTRICT: DISTRICT INSTRUCTIONAL GUIDE**

**GRADE LEVEL: HIGH SCHOOL**

**SUBJECT: HYBRID BIOLOGY**

**CORE TEXT: A+ INTEGRATED BIOLOGY I/II**

**SEMESTER/QUARTER 1/1**

<b>TIME BLOCK</b>	<b>UNIT</b>	<b>CONTENT</b>	<b>SKILLS</b>	<b>STANDARDS/FOCU</b>	<b>ASSESSMENT/ BENCHMARK</b>
WEEK 1-2	BIO THEMES	CHARACTERISTICS OF LIFE	Describe the characteristics of living things.	S4C1 P02	Unit Exam
			Translate textual information in visual form with graphic organizer.	ELA 9-10 RST 10.7	
		STUDYING LIFE/BRANCHES OF BIOLOGY	Explain how life can be studied at different levels.	S4C1 P02	
WEEK 3	HISTORY OF BIOLOGY	SPONTANEOUS GENERATION/CELL THEORY/MENDEL/DARWIN	Describe how human curiosity and need have influenced science. Describe how diverse people have made important contributions to science.	S2C1 PO1-4	Unit Exam
WEEK 4-5	SCIENTIFIC METHOD	SCIENTIFIC METHOD	Explain a hypothesis.	S1C1, S1C2, S1C3	Unit Exam
			Describe how a hypothesis is tested.	S2C2	
			Current Science Topic, cite evidence determine central idea and summarize	ELA 9-10 RST 10.1, 10.2, 10.8	
		DESIGNING EXPERIMENTS	Design appropriate protocol for testing a hypothesis	S1C2 PO3	
		COLLECTING DATA	Determine appropriate method for data collection	S1C2 PO5	
		INTERPRETING & PRESENTING DATA	Evaluate whether data support or do not support proposed hypothesis. Choose an appropriate method for communicating results.	S1C3 PO2, S1C4 PO 1-4	

WEEK 6	BASIC CHEMISTRY	ATOMS, COMPOUNDS, BONDS	Identify the three subatomic particles in atoms	S5C1 PO6	Unit Exam
			Explain what chemical compounds are	S5C1 PO3	
			Describe the two main types of bonds	S5C4 P04	
		THE PROPERTIES OF WATER	Explain why water molecules are polar.	S1C3 P05	
			Differentiate between solutions and suspensions	S4C1 P03	
			Explain what an acidic and basic solution is.	S4C1 P04	
WEEK 7	CHEMISTRY OF LIFE	CARBON COMPOUNDS	Explain the functions of each group of organic compounds.	S4C5 P03	Unit Exam
			CHEMICAL REACTIONS & ENZYMES	Explain how chemical reactions affect chemical bonds in compounds	
		Describe why enzymes are important to living systems.			
WEEK 8-9	CELLS	CELLS & CELL THEORY	Explain what the cell theory is.	S4C1 P02	Unit Exam
			TYPES OF CELLS		
		CELL STRUCTURE & FUNCTION	Describe the function of the cell nucleus.	54C1 PO2	
			Describe the functions of the cell's organelles.		
			Identify the main functions of the cell membrane and the cell wall	54C1 PO2	
			Describe what happens during diffusion.	54C1 PO3	
			Explain the processes of osmosis, facilitated diffusion, and active transport.		

**SEMESTER/QUARTER 1/2**

WEEK 10-11	ENERGY & CELLS	PHOTOSYNTHESIS	Explain where plants get the energy they need to produce food.	55C5 PO1-2	Unit Exam	
			Describe the role of ATP in cellular activities.			
			State the overall equation for photosynthesis.			
			Describe the role of light and chlorophyll in photosynthesis.			
			Describe the structure and function of a chloroplast.			
			Describe what happens in the light-dependent reactions.			
			Explain the Calvin Cycle.			
			Identify factors that affect the rate at which photosynthesis occurs.			
			Analyze concepts in text and determine the meaning of symbols and key terms.			ELA 9-10 RST 10.4, 10.5, 10.10
			Follow precise complex steps when carrying out procedures (Photosynthesis Lab)			ELA RST 9-10 10.3
		CELLULAR RESPIRATION	Explain what cellular respiration is.	55C5 PO1		
			Describe what happens during the process of glycolysis.	51C3		
			Name the two main types of fermentation.	54C5 PO1		
			Describe what happens during the Krebs cycle.			
			Explain how high energy electrons are used by the electron transport.	S4C1 PO2		

			Identify three pathways the body uses to release energy during exercise.	S5C5 PO1	
			Compare photosynthesis and cellular respiration		
			Translate technical information expressed in words into a visual form	ELA RST 9-10 10.7	
WEEKS 12-13	CELL DIVISION	MITOSIS	Name the main events of the cell cycle.	54C2 P04	Unit Exam
			Describe what happens during the four phases of mitosis.		
			Translate technical information expressed in words into a visual form (Cell Cycle)	ELA RST 9-10 10.7	
			Describe how the cell cycle is regulated.	54C1 P02	
			Explain how cancer cells are different from other cells.		
			Follow and evaluate procedures (Mitosis Lab)	ELA RST 9-10 10.3	
		MEIOSIS	Contrast the chromosome number of body cells and gametes.	S4C2 PO4	
			Summarize the event of meiosis.	S4C4 PO 1-5	
			Contrast meiosis and mitosis.		
WEEK 14-15	REPRODUCTION & DEVELOPMENT	SEXUAL VS ASEXUAL REPRODUCTION	Describe the purposes and processes of cellular reproduction.	S4C1 P02 S4C1 PO5.	Unit Exam
			Describe the role of energy in cellular growth, development, & repair		
	DIFFERENTIATION & DEVELOPMENT				
	DNA, GENES, & CHROMOSOMES	HOMOZYGOUS VS HETEROZYGOUS	Analyze the relationship between nucleic acids, genes, and chromosomes.	S4C2 PO1	

	GENETICS	MENDELIAN GENETICS	Describe how Mendel studied inheritance in peas.	S4C2 PO3	
			Explain the principle of Independent Assortment.		
			Explain how Mendel's principles apply to all organisms.		
			Analyze concepts in text and determine the meaning of symbols and key terms.	ELA 9-10 RST 10.4, 10.5, 10.10	
		PATTERNS OF INHERITANCE	Summarize Mendel's conclusion about inheritance.	S4C2 PO3	
			Explain the principle of dominance.		
		MOLECULAR GENETICS	Contrast gene mutations and chromosomal mutations.		
WEEK 16-17	EVOLUTION	OVERVIEW OF EVOLUTION	Describe the pattern Darwin observed among organisms of the Galapagos	S4C4 PO 1-4	Unit Exam
			List events leading to Darwin's publication of <i>On the Origin of Species</i>		
		NATURAL SELECTION & MICROEVOLUTION	Describe how Natural Variation is used in Artificial selection.	54C4 PO 1-4	
			Explain how natural selection is related to species' fitness		
			State Darwin's theory of evolution by natural selection.		
			Explain gene pool.		
			Identify the main sources of inheritable variation in a population.		
		State what determines how a phenotype is expressed.			

		EXTINCTION, SPECIATION, & MACROEVOLUTION	Identify the condition necessary for a new species to evolve.	54C4 PO 1-4	
			Describe the process of speciation in the Galapagos finches.		
WEEK 18	FINAL EXAM REVIEW	ALL UNITS	ALL SKILLS	ALL STANDARDS	FINAL EXAM
<b>SEMESTER/QUARTER 2/1</b>					
WEEK 1-2	CLASSIFICATION	CLASSIFICATION, TAXONOMY, PHYLOGENY	Describe the three domain system of classification.	54C4 PO 6	Unit Exam
			Analyze concepts in text and determine the meaning of symbols and key terms	ELA RST 9-10 10.4, 10.5, 10.10	
WEEK 2-4	VIRUSES & BACTERIA	VIRUSES, VIROIDS, & PRIONS	Describe the structure of a virus.	54C2 PO2	Unit Exam
			Explain how viruses cause infection.		
		ARCHAEA & EUBACTERIA	Explain how the two groups of prokaryotes differ.	S4C2 PO2	
			Describe the factors that are used to identify prokaryotes.	S4C1 PO1	
			Explain why bacteria are vital to maintaining the living world.		
			Analyze author's purpose in discussing an experiment in text, defining the question the author seeks to address (Bact Lab)	ELA RST 9-10 10.6	
			Explain how bacteria cause disease.	S4C2 PO2	
			Describe how bacterial growth can be controlled.		
WEEK 5-6	PROTISTS & FUNGI	PROTISTS	Describe the characteristics of a Protist.	54C4 P06	Unit Exam
			Describe the major phyla of animal-like Protists.		
			Explain how animal-like Protists harm other living things.		

			Describe the function of chlorophyll and accessory pigments in algae		
		FUNGI	Describe the defining features of fungi	54C4 P06	
WEEK 7-8	PLANTS	PLANT DIVERSITY	Describe the defining features of plants	54C4 P06	Unit Exam
		PLANT RESPONSES			
WEEK 9	ANIMAL DIVERSITY	INVERTEBRATE	Contrast vertebrates & invertebrates	54C4 P06	Unit Exam
		VERTEBRATE			
		BODY SYSTEMS			
<b>SEMESTER/QUARTER 2/2</b>					
Week 10	ANIMAL FORM & FUNCTION	INSTINCTIVE VS LEARNED BEHAVIOR	Describe the levels of organization of living things from cells, through tissues, organs, organ systems, organisms	S4C5 PO5	Unit Exam
	ANIMAL BEHAVIOR	TISSUES & ORGAN SYSTEMS	Describe how organisms are influenced by a particular combination of biotic (living) and abiotic (nonliving) factors in an environment.	S4C3 PO2	Unit Exam
Week 11-12	HUMAN BIOLOGY	OVERVIEW	Differentiate between the different types of tissues and organ systems in the human body.	S4C5 PO5	Unit Exam
Week 13-17	ECOLOGY	POPULATIONS & COMMUNITIES	Identify the relationships among organisms within populations, communities, ecosystems, and biomes.	S4C5 PO 1-5, S4C3 PO1-3	Unit Exam
		ENERGY, MATTER, & ECOSYSTEMS	Describe how organisms are influenced by a particular combination of biotic (living) and abiotic (nonliving) factors in an environment.		

		BIOMES & THE BIOSPHERE	Diagram the following biogeochemical cycles in an ecosystem: water, acrbon, & nitrogen		
		HUMANS & ENVIRONMENTS	Identify the relationships among organisms within populations, communities, ecosystems, and biomes. Describe the various ways humans impact the environment	S3C1 PO1-5	
WEEK 18	FINAL EXAM REVIEW	ALL UNITS	ALL SKILLS	ALL STANDARDS	FINAL EXAM