High School Biology Correlations to PLT's "Focus on Forests"

LS1 From Molecules to Organisms: Structures and Processes

Performance Expectations	*Focus on Forests*									
	Introduction	1	2	3	4	5	6	7	8	9
B-LS1-1. Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins, which carry out the essential functions of life through systems of specialized cells.										
B-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.										
B-LS1-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.										
B-LS1-4. Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.										
B-LS1-5. Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.	□								●	
B-LS1-6. Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and other large carbon-based molecules necessary for essential life processes.										
B-LS1-7. Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules are broken in new compounds are formed, resulting in a net transfer of energy.										

● Standard fully addressed
□ Standard partially addressed
E Enrichment Activity
MC Media Connections

LS2 Ecosystems: Interactions, Energy, and Dynamics

Performance Expectations	*Focus on Forests*									
	Introduction	1	2	3	4	5	6	7	8	9
B-LS2-1. Use mathematical and/or computational representations to support explanations of biotic and abiotic factors that affect carrying capacity of ecosystems at different scales.	□	●	●				● MC	●		
B-LS2-2. Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.	□	●	●	●		□	● MC	● E MC		
B-LS2-3. Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.	●	● MC					●		●	
B-LS2-4. Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.	□	●					●		● E	
B-LS2-5. Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.	●								● MC	
B-LS2-6. Evaluate claims, evidence, and reasoning that the complex interactions in ecosystems maintain	□	● MC	● E			● E	●	● MC		

● Standard fully addressed
□ Standard partially addressed

E Enrichment Activity
MC Media Connections

relatively consistent numbers and types of organisms in stable conditions but changing conditions may result in a new ecosystem.										
B-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on biodiversity and ecosystem health.	☐	● E		● E MC	● E MC	● MC	●	●	●	●
B-LS2-8. Evaluate evidence for the role of group behavior on individual ad species' chances to survive and reproduce.	☐									

LS3 Heredity: Inheritance and Variation of Traits

Performance Expectations	***Focus on Forests***									
	Introduction	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
B-LS3-1. Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.										
B-LS3-2. Make and defend a claim based on evidence that inheritable genetic variations may result from (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.										
B-LS3-3. Apply statistics and probability to explain the variation and distribution of expressed traits in a population.										

LS4 Biological Evolution: Unity and Diversity

Performance Expectations	*Focus on Forests*									
	Introduction	1	2	3	4	5	6	7	8	9
B-LS4-1. Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.										
B-LS4-2. Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.										
B-LS4-3. Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.										
B-LS4-4. Construct an explanation based on evidence for how natural selection leads to adaptation of populations.										
B-LS4-5. Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number			□							

of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.										
B-LS4-6. Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity	□	□	□		•	□	•	•	□	□

HS Biology Reverse Correlations to PLT's "Focus on Forests"

PLT Activities	Molecules to Organisms (B-LS1)	Ecosystems: (B-LS2)	Heredity: (B-LS3)	Evolution: (B-LS4)
Introduction: Forests are more than trees.	•B-LS1-5	□B-LS2-1 □B-LS2-2 •B-LS2-3 □B-LS2-4 •B-LS2-5 □B-LS2-6 □B-LS2-7 □B-LS2-8		□B-LS4-6
1 Monitoring Forest Health		•B-LS2-1 •B-LS2-2 •B-LS2-3 •B-LS2-4 •B-LS2-6 •B-LS2-7		□B-LS4-6
2 Story of Succession		•B-LS2-1 •B-LS2-2 •B-LS2-6		□B-LS4-5 □B-LS4-6
3 Who Owns America's Forests?		•B-LS2-2 •B-LS2-7		
4 Tough Choices		•B-LS2-7		•B-LS4-6
5 The Nature of Fire		□B-LS2-2 •B-LS2-6 •B-LS2-7		□B-LS4-6
6 Forest to Faucet		•B-LS2-1 •B-LS2-2 •B-LS2-3 •B-LS2-4 •B-LS2-6 •B-LS2-7		•B-LS4-6

● Standard fully addressed
□ Standard partially addressed
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MC Media Connections

7 **Forest Invaders**		•B-LS2-1 •B-LS2-2 •B-LS2-6 •B-LS2-7		•B-LS4-6
8 **Climate Change and Forests**	•B-LS1-5	•B-LS2-3 •B-LS2-4 •B-LS2-5 •B-LS2-7		□B-LS4-6
9 **Words to Live By**		•B-LS2-7		□B-LS4-6