

AP Biology
Unit 1: Ecology & Animal Behavior
Learning Objectives & Assignment List

Upon completing this unit the student will be able to:

Ecology

- a) Define, describe, and give examples for the terms population, community, ecosystem, biosphere, habitat, and niche.
- b) Describe and graphically illustrate examples of the population ecology concepts of population size, density, dispersion, age structure, survivorship, biotic potential, carrying capacity, limiting factors, r-selected vs. K-selected species, and population cycles.
- c) Define and describe community ecology examples involving competition, predation, and symbiosis.
- d) Explain three variations of co-evolutionary adaptation.
- e) Describe the process of succession, noting the difference between primary and secondary succession.
- f) Define the term climax community.
- g) Draw and explain an example of a food chain, food web, and ecological pyramid.
- h) Give examples and explain the function of producers, consumers, and decomposers in an ecosystem.
- i) Define the terms: ecology, ecosystem, biome.
- j) Diagram and explain the nitrogen cycle, carbon cycle, and water cycle.
- k) Give an example of one terrestrial biome (tundra, desert or deciduous forest) and describe its climate, general vegetation and examples of animals that may be found there.
- l) Give three examples of human impact on the biosphere.

Animal Behavior

- a) Describe three categories of animal behavior.
- b) Describe one type of animal movement.
- c) Describe one type of animal communication.
- d) Describe one type of social behavior in animals
- e) Provide a behavioral ecology rationale for a given set of animal behaviors.

Supplemental Discussion Questions

1. *Population dynamics*

What models are useful in describing the growth of a population?

How is population size regulated by abiotic and biotic factors?

2. *Communities and ecosystems*

How is energy flow through an ecosystem related to trophic structure (trophic levels)?

How do elements (e.g., carbon, nitrogen, phosphorus, sulfur, oxygen) cycle through ecosystems?

How do organisms affect the cycling of elements and water through the biosphere?

How do biotic and abiotic factors affect community structure and ecosystem function?

3. *Global issues*

In which ways are humans affecting biogeochemical cycles?

Assignments

Title	Name	Due Date
Reading and Chapter Notes	Chapter 1 Themes & Chapters 51 - 55 Ecology & Animal Behavior (Campbell/Reece - 8th edition)	
Worksheets	Ecology multiple-choice worksheets	
Text Website	Variety of Activities (site available at start of fall semester)	
Free Response Questions to be done with the summer assignment!	<p>ECOLOGY QUESTION Using an example for each, discuss the following ecological concepts.</p> <ul style="list-style-type: none"> a) Succession b) Energy flow between trophic levels c) Limiting factors d) Carrying capacity <p>ECOLOGY QUESTION Describe the biogeochemical cycles of carbon and nitrogen. Trace these elements from the point of their release from a decaying animal to their incorporation into a living animal.</p>	See Homework Calendar
Lab Activities	AP Lab 11 AP Lab 12	
Unit Exam	Covers Chapters 51 - 55 (Campbell/Reece - 8th edition)	