

ECOLOGY OBJECTIVES

I. Ecology—Introduction *What is ecology?*

- a. I can describe what is studied in ecology.
- b. I can write the difference and give examples of abiotic and biotic factors in the biosphere.
- c. I can illustrate how the following words are connected: organism, population, community, ecosystem, biome, biosphere.

II. Population Growth *How do populations increase and decrease in size?*

- a. I can interpret two different graphs of population growth: exponential population growth and logistic population growth.
- b. I can classify examples of factors that limit a population's growth as either density-independent or density-dependent.
- c. I can predict what will happen to a population's size if the following occur: emigration, immigration, changes in birth rates and death rates.

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III. Community Interactions *How do members of a community interact with each other?*

- a. I can explain the difference between competition and predation.
- b. I can compare and contrast the three types of symbiotic relationships that occur in communities: mutualism, parasitism, and commensalism.
- c. I can classify given examples as either a habitat or a niche.
- d. I can explain what happens when two organisms try to share the same niche.

IV. Ecosystem Interactions *How does energy flow and get recycled in ecosystems?*

- a. I can explain the roles of autotrophs (producers) and heterotrophs (consumers) in ecosystems.
- b. I can identify food chains within food webs, and label the trophic levels to which each organism belongs.
- c. I can explain why decomposers are very important to organisms in ecosystems.
- d. I can interpret an energy pyramid to determine what happens (and why it happens) to the amount of energy as you move up the trophic levels.

Illinois Assessment Frameworks: 12.11.35

V. Biodiversity in Ecosystems *How is biodiversity connected to me?*

- a. I can explain what biodiversity is and why it is important.
- b. I can give specific examples of the five main threats to biodiversity: HIPPO
- c. I can explain an example of how biological magnification threatens biodiversity.
- d. I can predict how climate change can threaten biodiversity.

Illinois Assessment Frameworks: 12.11.31, 12.11.33, 12.11.34