

Ecosystem Relationships

Energy in Ecosystems

Name: _____

Read the introduction and follow the procedure found at http://www.mhhe.com/biosci/genbio/virtual_labs/BL_02/BL_02.html to study and analyze how energy moves through five simplified model ecosystem via food webs.

1. Complete the data table

Ecosystem	Producer	1st-Order Heterotrophs	2nd-Order Heterotrophs	3rd-Order Heterotrophs
Deciduous Forests				
Hot Desert				
Grassland				
Antarctic Ocean Shore				
Freshwater Lake				

2. Answer the Following Questions

- 1) Suggest reasons why the information represented in the pyramid of numbers of animals of one of the ecosystems you studied may not truly represent that ecosystem.
- 2) According to your data, what is the ratio of third-order consumers to producers? Explain your answer.
- 3) Compare and contrast two of the ecosystems you studied. How is the energy conversion efficiency similar or different?
- 4) Does the population size increase or decrease at higher trophic levels in the pyramid of numbers of an ecosystem consisting of a tree, insects (that are herbivores) and birds feeding on the insects? Explain your answer.
- 5) What might happen to an ecological pyramid of numbers in a forest ecosystem if most of the deer were hunted and killed, or died from disease?

6) What would happen to an ecosystem if the decomposers disappeared?

7) Could there be a food chain without herbivores and carnivores?