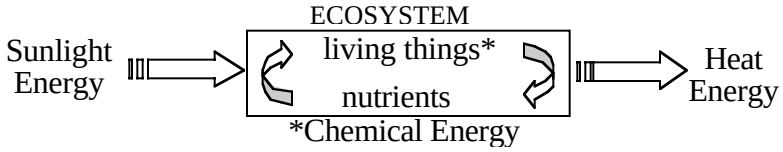
Biology 10 - Introduction to Biology
West Valley College - Norris

Communities and Ecosystems

I. Definitions
- A. Ecosystem
- B. Community
- C. Population
- D. Biodiversity
- E. Habitat
- F. Niche

II. Characteristics of Ecosystems
- A. Ecosystems are Open Systems



- B. Energy Flow and Nutrient Cycling within Living Things (Biotic Community)
  (Trophic Structure = Who Eats Who)
  1. Producers
  2. Consumers
     - Herbivores
     - Carnivores
     - Parasites
     - Omnivores
  3. Detritivores & Decomposers

III. Ecosystem Structure
- A. Trophic Levels
- B. Food Webs

IV. Species Interactions
- A. Neutralism
- B. Commensalism
- C. Mutualism
- D. Symbiosis - the special situation where two organisms habitually live together in close association (note: in its general form symbiosis may include commensalism and mutualism (even parasitism), although the reverse is not true, mutualism etc. does not imply symbiosis)
- E. Competitive Interactions
  a. Intraspecific
  b. Interspecific

1. Predator / Prey Interactions

a. Prey Defenses
- camouflage
- warning coloration
- mimicry
- last ditch defenses

2. Parasites

V. Community Interactions / Development

A. Competetive Exclusion

B. Resource Partitioning

VI. Community Disturbances

A. Introduction of Species

B. Succession

1. Primary Succession

2. Secondary Succession

VII. Biogeochemical Cycles (Nutrient Cycling within the Abiotic Community)

A. Water Cycle

B. Carbon Cycle

- Greenhouse Effect

C. Nitrogen Cycle

VIII. Additional Selected Key Terms

abiotic	acclimation	adaptive	adaptation	ammonification
autotroph	biomass	biotic	carbon sink	climax community
coevolution	denitrification	heterotroph	leaching	nitrification
parasitoids	pioneer species	species	watershed	

Study Questions – Communities and Ecosystems

1. What is a "community"? What is a "niche"?
2. What does "biodiversity" mean?
3. What does it mean when an ecosystem is described as an "open system?"
4. Nutrients cycle within ecosystems. What are these "nutrients"? What does it mean when nutrients are said to "cycle" within an ecosystem?
5. Describe the "flow" of energy through an ecosystgem. Where does this energy come from? Where does it go?
6. What is a producer? What are some other names for producers? Provide some examples of producers.
7. What is a consumer? What are some other names for consumers? Provide some examples of consumers.
8. What are detritivores and decomposers? What are their roles in an ecosystem? Provide some examples of detritivores and decomposers.
9. What is a "trophic level"?
10. What is the difference between a "food chain" and a "food web"?
11. Describe the following types of species interactions and provide examples of each:
    a. Neutralism
    b. Commensalism
    c. Mutualism
    d. Symbiosis
12. How do predators benefit during predator-prey interactions? Howe do the prey species benefit?
13. How do prey protect themselves from predation?
14. What is "competetive exclusion"? Provide an example.
15. What is "resource partitioning"? Provide an example.
16. What is "succession"?
17. Describe the factors that effect the water cycle. How do living things influence the water cycle? What might occur if living things are removed from the water cycle?
18. Describe the factors that effect the carbon cycle. How do living things influence the carbon cycle? What might occur if living things are removed from the carbon cycle?
19. What is the "greenhouse effect"?
20. What type of organism is most important in the nitrogen cycle?
21. In summary, how would you describe the relationship between all of the living things within a community?

"In all things of nature there is something of the marvelous."
Aristotle

"Nature encourages no looseness, pardons no errors."
Ralph Waldo Emerson