

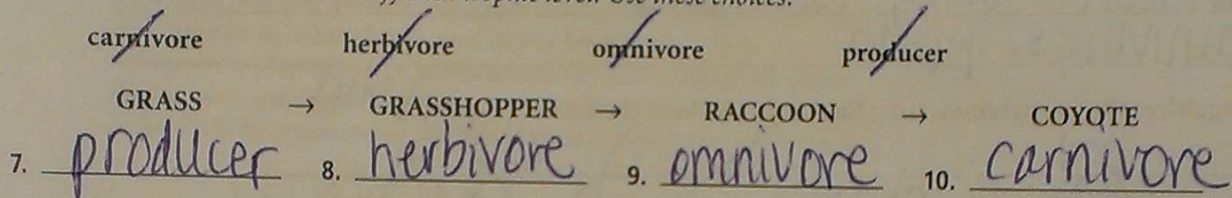
In your textbook, read about autotrophs and heterotrophs.

Match the definition in Column A with the term in Column B.

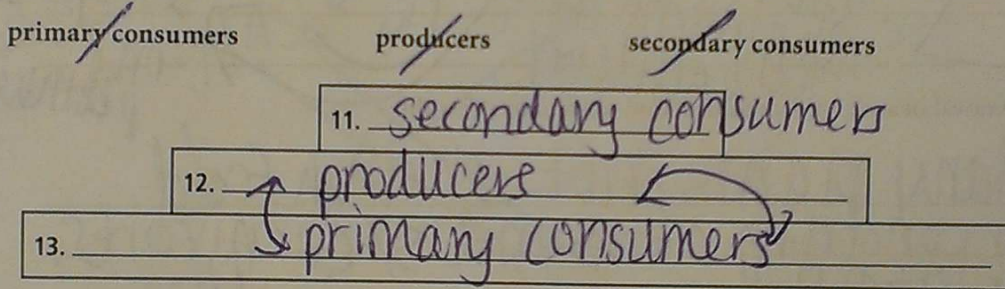
Column A	Column B
<u>E</u> 1. get energy by eating other organisms	<u>A</u> autotrophs
<u>F</u> 2. eat both plants and animals	<u>B</u> carnivores
<u>B</u> 3. eat only animals	<u>C</u> detritivores
<u>A</u> 4. collect energy to produce their own food	<u>D</u> herbivores
<u>D</u> 5. eat only plants	<u>E</u> heterotrophs
<u>C</u> 6. eat or break down dead things	<u>F</u> omnivores

In your textbook, read about models of energy flow.

Label the food chain below to identify each trophic level. Use these choices:



Label the ecological pyramid. Use these choices:



Respond to each statement.

14. Recall the name for the total amount of living matter in each trophic level of an ecological pyramid.

biomass

15. Explain why an ecological pyramid is smaller at the top than at the bottom.

90% of energy is lost from one level to the next (10% rule)

Section

CHAPTER 2

Quick Check

Section 2: Flow of Energy in an Ecosystem

After reading the section in your textbook, respond to each statement.

1. State why detritivores are an important part of the ecosystem.

Breakdown dead/decaying matter to return nutrients into the soil for use by other living things.

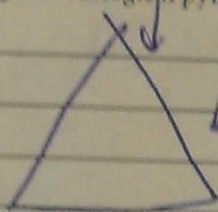
2. Describe how food chains are related to food webs.

Food chains are one pathway out of an entire food web.

3. Differentiate among herbivores, carnivores, and omnivores.

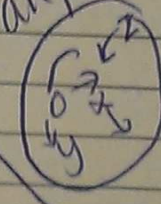
heterotrophs } Herbivores: eat only plants
 } carnivores: only animals
 } omnivores: both

4. Distinguish ecological pyramids from food webs and food chains.



shows # of organisms at each level

all possibilities



x → y → z
one pathway

5. Predict how the removal of an herbivore from a food web could affect the entire community.

too many plants; not enough food for secondary consumers/carnivores.
↓ tertiary

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Enrichment

CHAPTER 2

Diagramming: A Food Web

Studying the flow of energy in an ecosystem is one way that ecologists learn about the relationships between the different organisms in the ecosystem. Ecologists try to determine how the organisms obtain the energy they need and thereby identify the trophic level of each organism. Most ecosystems are complex, and it is often difficult or impossible to trace all the energy pathways between organisms. Ecologists use models, called food chains and food webs, to help them study the flow of energy in an ecosystem.

Food Chains A simple model of the energy flow in an ecosystem is a food chain. A food chain represents the one-way flow of energy, which starts with an autotroph and moves to heterotrophs. An example of a simple food chain is:

grass → rabbit → hawk

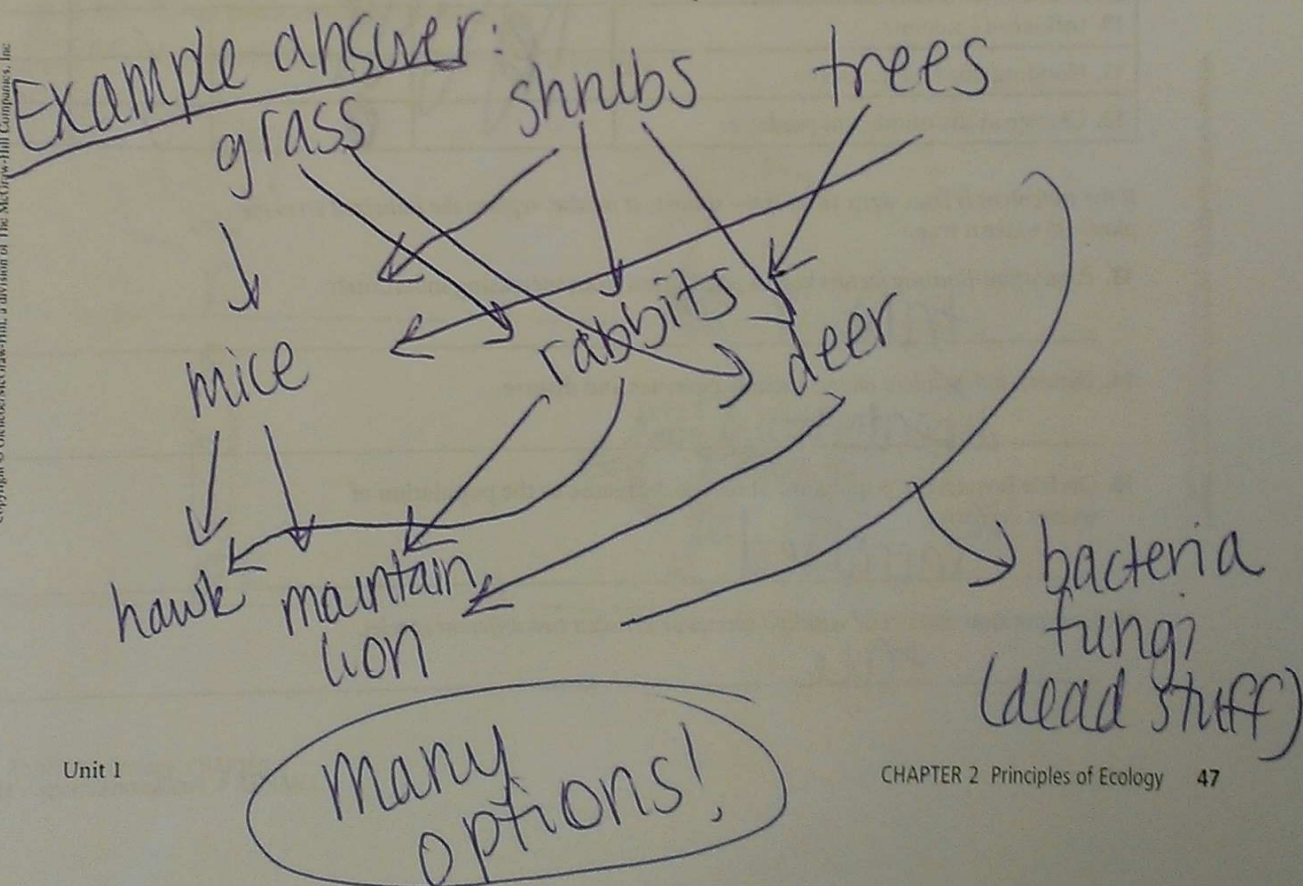
Arrows represent the direction of the energy flow.

Food Webs More complex and realistic energy flows within ecosystems are modeled by food webs. Because most organisms use more than a single source of food, food webs more closely model the relationships in ecosystems. In the preceding example, rabbits are not the only herbivores that consume grass, and hawks eat other organisms besides rabbits.

Directions

In the space below, draw a diagram that shows an example of a food web in a terrestrial ecosystem. The organisms in the ecosystem include the following: fungi, snakes, rabbits, grass, mountain lions, mice, shrubs, seed-eating birds, trees, hawks, bacteria, and deer. Use arrows to represent the flow of energy in this ecosystem. Also indicate the trophic level of each organism: decomposer, autotroph, or heterotroph. Use your text and other resources as references. Be sure to label all the organisms in the food web, as well as their trophic levels.

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CHAPTER 4

Study Guide

Section 1: Population Dynamics

In your textbook, read about population characteristics.

Use each of the terms below only once to complete the passage.

~~carrying capacity~~
~~population density~~

~~density dependent~~
~~randomly~~

~~density independent~~
~~dispersion~~

~~growth rate~~

Some characteristics that all populations have include (1) population density, (2) growth rate, and (3) dispersion. Populations tend to be dispersed (4) randomly, uniformly, and in clumps. Populations also tend to stabilize near the (5) carrying capacity of their environment. Factors that limit populations are either (6) density dep. or (7) density indep.

In your textbook, read about population-limiting factors.

Complete the table by checking the correct column(s) for each description.

Description	Density Dependent	Density Independent	Dep.	Indep.
8. Earthquake-related tsunami	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
9. Intense competition for a food source	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
10. Influenza epidemic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
11. Flooding due to a hurricane	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
12. Change in the number of predators	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

If the statement is true, write true. If the statement is false, replace the italicized term or phrase to make it true.

13. Population-limiting factors keep a population from increasing indefinitely.

true

14. Density-independent factors include parasites and disease.

dependent

15. On Isle Royale, the population of moose decreased as the population of wolves decreased.

increased

16. Competition can occur within a species or between two different species.

true

Figure 1

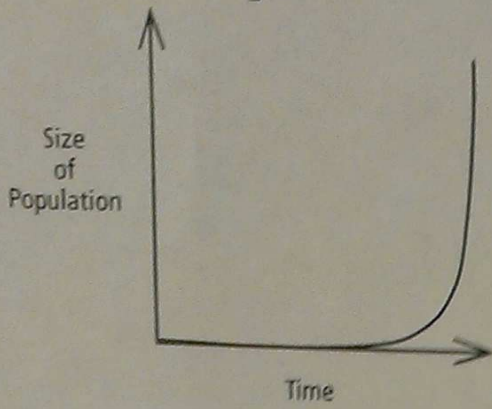
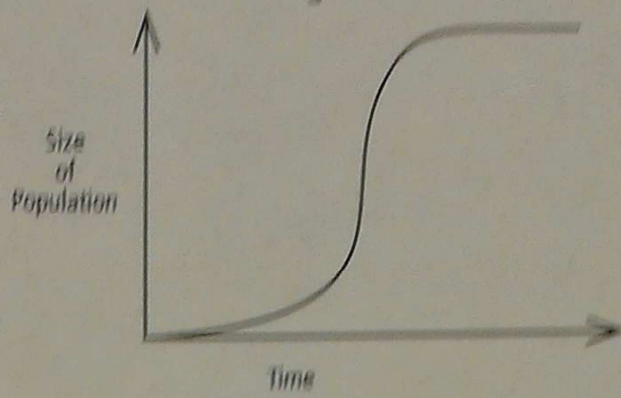


Figure 2



Refer to Figures 1 and 2. Respond to each statement.

17. Identify the type of growth rate demonstrated in Figure 1.

exponential growth

18. Identify the type of growth rate demonstrated in Figure 2.

logistic growth.

19. Tell which type of growth rate comes first.

exponential growth.

In your textbook, read about reproductive patterns.

Identify the following as being either an r-strategist or a k-strategist.



r

20.



r

22.



k

21.



k

23.