

Skills Worksheet

Active Reading

Section: What Is an Ecosystem?

Read the passage below. Then answer the questions that follow.

Ecology is the study of the interactions of living organisms with one another and with their physical environment. The place where a particular population of a species lives is its **habitat**. The many different species that live together in a habitat are called a **community**. An **ecosystem**, or ecological system, consists of a community and all the physical aspects of its habitat, such as the soil, water, and weather. The physical aspects of a habitat are called **abiotic factors**, and the living organisms in a habitat are called **biotic factors**. The number of species living within an ecosystem is a measure of its **biodiversity**.

SKILL: READING EFFECTIVELY

In the space provided, write the term or phrase from the passage above that best matches the description. Some terms or phrases may be used more than once.

1. all living organisms in a habitat _____
2. number of species living within an ecosystem _____
3. study of a habitat's abiotic and biotic factors _____
4. deer, squirrels, and rabbits living together in a forest form this _____
5. an ecological system _____
6. soil, water, and weather are examples of these _____
7. place where a population lives _____
8. all species of freshwater fish that live together in a lake form this _____
9. consists of a community and abiotic factors _____

An analogy is a comparison. In the space provided, write the letter of the term that best completes the analogy.

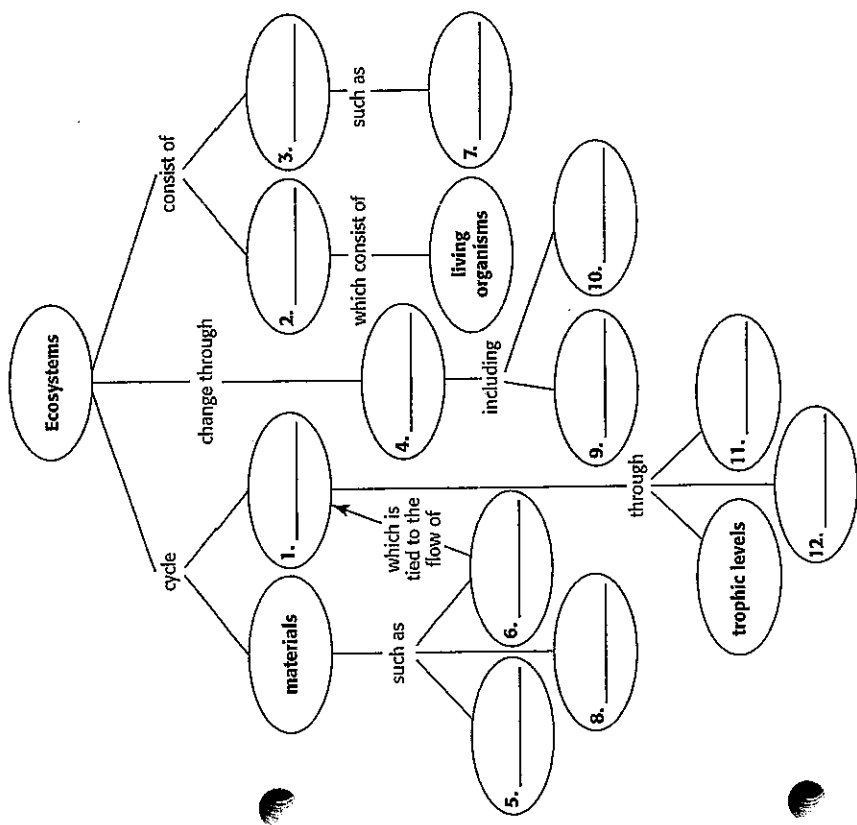
10. Biotic is to bird as abiotic is to _____
- a. grass.
 - b. tree.
 - c. nest.
 - d. worm.

Skills Worksheet

Concept Mapping

Using the terms and phrases provided below, complete the concept map showing the characteristics of ecosystems.

- | | | | |
|-----------------|-------------|----------------------|------------|
| abiotic factors | energy | nitrogen | soil |
| biotic factors | food chains | primary succession | succession |
| carbon | food webs | secondary succession | water |



Directed Reading

Section: Energy Flow in Ecosystems

In the space provided, explain how the terms in each pair differ in meaning.

1. producers, consumers

2. trophic level, food chain

3. herbivores, carnivores

4. detritivores, decomposers

Directed Reading continued

In the space provided, write the letter of the description that best matches the term or phrase.

- 5. omnivore _____
- 6. herbivore _____
- 7. producer _____
- 8. detritivore _____
- 9. decomposer _____
- 10. consumer _____
- 11. carnivore _____
- 12. food web _____
- 13. food chain _____
- a. interconnected group of food chains
- b. cause decay
- c. a path of energy through the trophic levels of an ecosystem
- d. eat only plants
- e. eat only animals
- f. organisms that first capture energy
- g. eat both plants and animals
- h. consume plants or other organisms to obtain energy
- i. obtain energy from organic wastes and dead bodies

Complete each statement by writing the correct term or phrase in the space provided.

- 14. At each trophic level, the energy stored is about _____ percent of that stored by the organisms in the level below.
- 15. A(n) _____ is a diagram in which each trophic level is represented by a block.
- 16. The rate at which organic material is produced by photosynthetic organisms in an ecosystem is called _____.

Science Skills *continued*

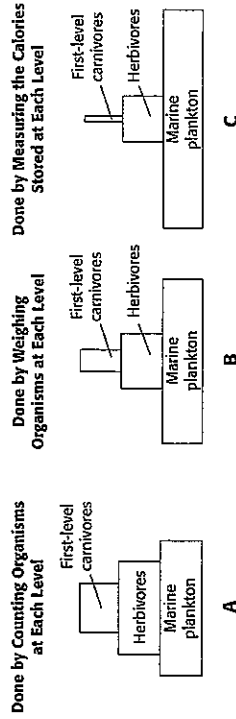
Read each question about the food web on the previous page, and write your answer in the space provided.

5. What organisms do cod eat?

6. List all the organisms that eat squid.

7. How many producers are in the food web? Name them.

Use the figures below, which show trophic levels in an ecosystem, to complete items 8–11.



Study the three pyramids above. In the space provided, identify which pyramid is the most accurate indicator of each item below by writing the correct letter (A–C) in the space provided.

8. number of individual organisms _____
9. measurement of productivity _____
10. measurement of biomass _____

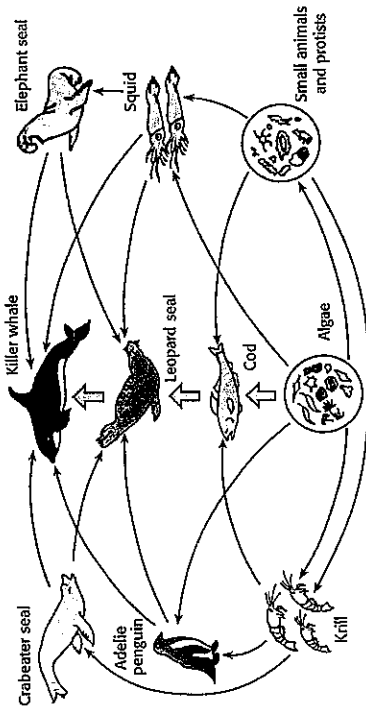
11. Which pyramid is the most accurate indicator of the amount of energy available at each trophic level? Explain.

Skills Worksheet

Science Skills

Interpreting Graphics

Use the figure below, which shows the food web of an aquatic ecosystem, to complete items 1–7.

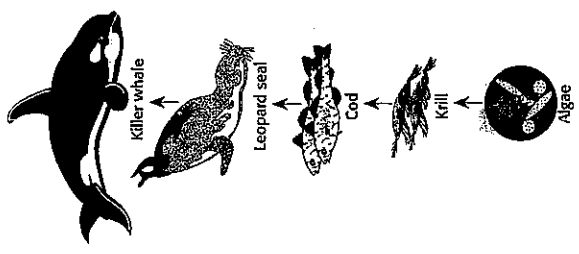


In the food web above, there are eight food chains that include krill. In the space provided, identify all of the organisms in the order in which they occur in four of these eight food chains.

1. Chain 1 _____
2. Chain 2 _____
3. Chain 3 _____
4. Chain 4 _____

Skills Worksheet
Test Prep Pretest

- in the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.
- Biodiversity is the number of species
 - of animals living within an ecosystem.
 - of plants and fungi living within an ecosystem.
 - of bacteria and protists living within an ecosystem.
 - living within an ecosystem.
 - The plants that first grow on an island formed by a volcano are part of a progression called
 - primary succession.
 - primary productivity.
 - secondary succession.
 - the climax community.
 - In the living portion of the water cycle, water
 - is retained beneath the surface of Earth as ground water.
 - evaporates from the soil.
 - evaporates from dead organisms.
 - is taken up by the roots of plants.



- Questions 4-7 refer to the figure at right.
- The algae are
 - decomposers.
 - consumers.
 - producers.
 - herbivores.
 - The krill are
 - decomposers.
 - consumers.
 - producers.
 - detritivores.
 - This figure is called a
 - food chain.
 - food web.
 - pyramid of energy.
 - trophic level.

Test Prep Pretest continued

- The most likely reason that this figure shows only five levels is that
 - pollution probably destroyed all of the higher levels.
 - no other organisms are powerful enough to kill and eat the killer whale.
 - too much energy is lost at each level to permit more levels.
 - there is not enough energy initially present at the first level.
- The process of succession varies depending on
 - the plant species involved.
 - initial environmental conditions and chance.
 - pioneer species.
 - competition between species.
- The conversion of nitrate to nitrogen gas is called
 - assimilation.
 - ammonification.
 - nitrification.
 - denitrification.

- In the space provided, write the letter of the description that best matches the term or phrase.
- habitat
 - animals at the second trophic level that eat plants
 - community
 - the place where a particular population of a species lives
 - ecosystem
 - the many species that live together in a habitat
 - herbivores
 - animals at the third trophic level that eat other animals
 - carnivores
 - a community and all the physical aspects of its habitat

- Complete each statement by writing the correct term or phrase in the space provided.
- The physical aspects, or _____ of an ecosystem's habitat include soil, water, and weather.
 - In a(n) _____, the amount of energy stored at each level determines the width of each block.
 - The amount of energy in a trophic level is more accurately determined by measuring the _____ (dry weight of tissue) than the _____ of organisms.
 - The process of combining nitrogen gas with hydrogen to form ammonia is called _____.