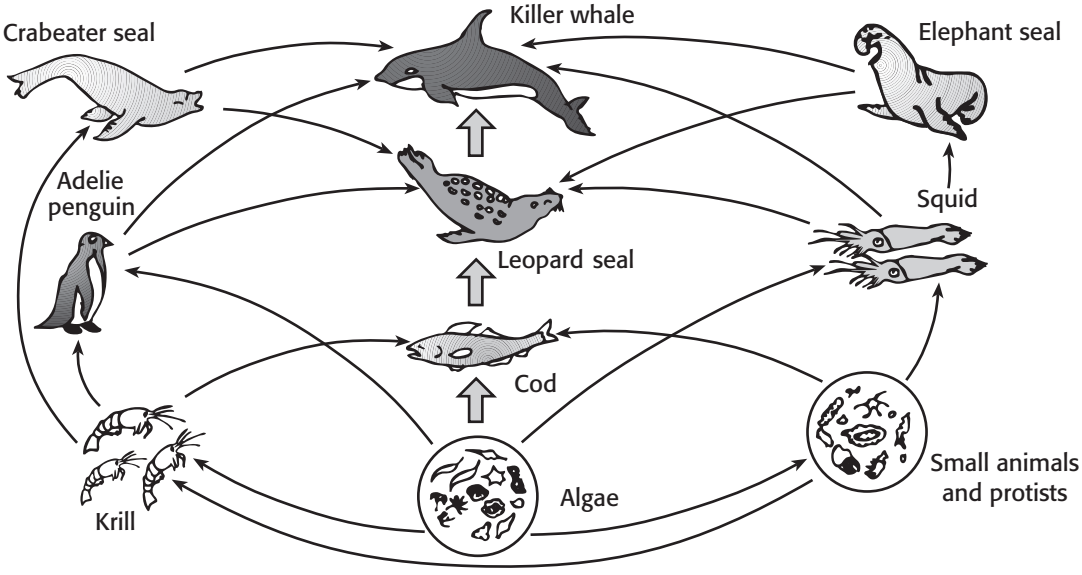
Name _____ Class _____ Date _____

Skills Worksheet

Food Chains and Food Webs

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 _____

_____

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Food Chains and Food Webs *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.

_____

_____

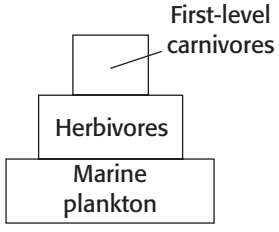
7. How many producers are in the food web? Name them.

_____

_____

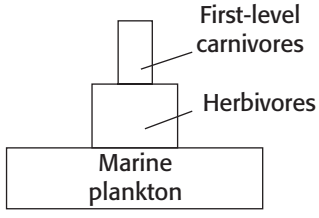
Use the figures below, which show trophic levels in an ecosystem, to complete items 8–11.

Done by Counting Organisms at Each Level



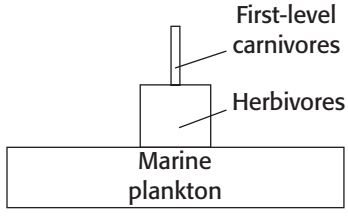
A

Done by Weighing Organisms at Each Level



B

Done by Measuring the Calories Stored at Each Level



C

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.

_____

_____

_____

Energy Transfer

INTERPRETING DATA

1. food chain A: corn—10,000 kcal; human vegetarians—1,000 kcal; food chain B: corn—10,000 kcal; cattle—1,000 kcal; human meat eaters—100 kcal
2. Because 90 percent of the energy from one trophic level never makes it to the next level, there is rarely enough energy available to sustain a fifth level.
3. Some energy is lost as heat, and some is used up in cellular respiration.
4. Activity increases the required kcal/hour by about 62 percent. Plant foods would be a more efficient diet; a vegetarian diet provides 10 times as much energy as a meat diet.
5. Because humans have access to 10 times as much energy when their diet consists of grains rather than meat, eating foods that are low on the food chain could allow people to get more energy from less food.

Food Chains and Food Webs

INTERPRETING GRAPHICS

1–4. Answers may include any of the following food chains:

Chain 1—algae, krill, Adelie penguin, leopard seal, killer whale
Chain 2—algae, krill, cod, leopard seal, killer whale
Chain 3—algae, small animals and protists, krill, crabeater seal, killer whale
Chain 4—algae, small animals and protists, krill, Adelie penguin, killer whale
Chain 5—algae, small animals and protists, krill, crabeater seal, leopard seal, killer whale
Chain 6—algae, krill, crabeater seal, leopard seal, killer whale
Chain 7—algae, krill, crabeater seal, killer whale
Chain 8—algae, krill, Adelie penguin, killer whale

5. krill, algae, small animals, and protists
6. leopard seal, killer whale, and elephant seal
7. one; algae
8. A
9. C
10. B
11. B; each higher level on the pyramid contains only 10 percent of the biomass found in the trophic level below it. Ecologists measure biomass to determine the amount of energy present in a trophic level.