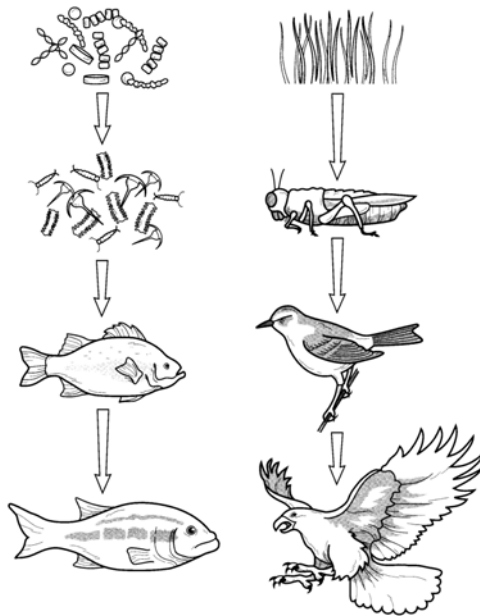
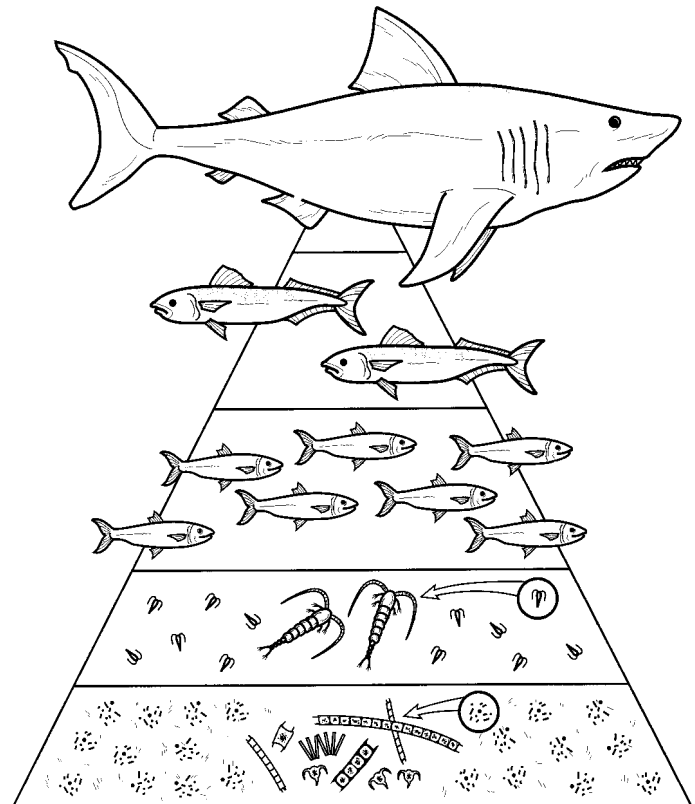


## ECOSYSTEMS

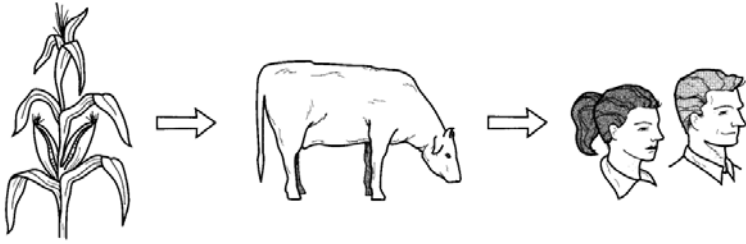
### TROPHIC LEVELS



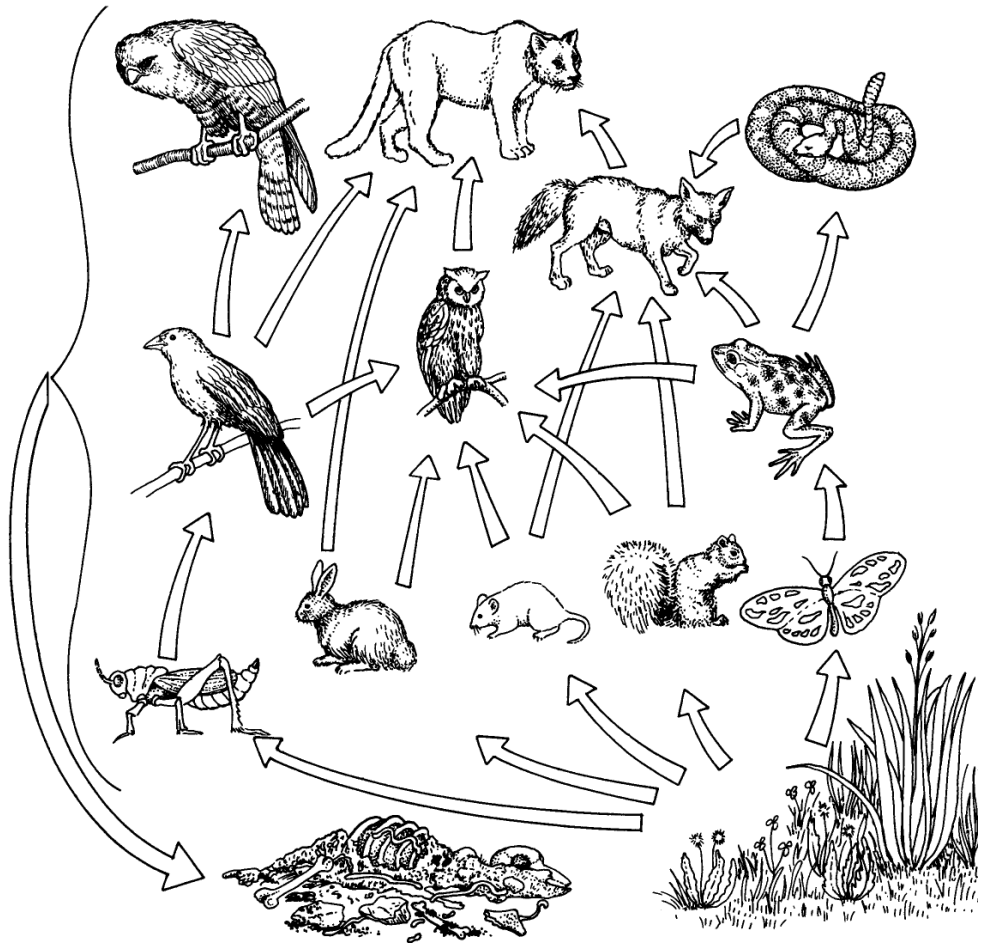
### ECOLOGICAL PYRAMIDS



**FOOD CHAIN**



**FOOD WEBS**



**QUESTIONS**

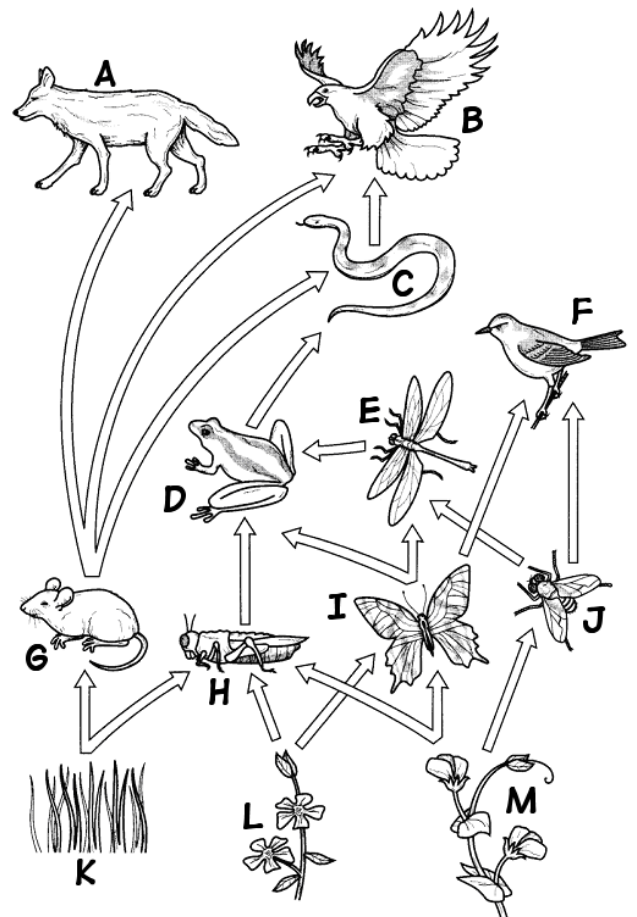
1. Define ecosystem. \_\_\_\_\_

\_\_\_\_\_

2. Identify the trophic level described in each of the following. Use the key to indicate your answers.

- A. Detritivores
- B. Primary consumers
- C. Primary producers
- D. Secondary consumers
- E. Tertiary consumers

- \_\_\_\_\_ Autotrophs
- \_\_\_\_\_ Convert sun energy into chemical energy
- \_\_\_\_\_ Plants, photosynthetic protists, cyanobacteria, chemosynthetic bacteria
- \_\_\_\_\_ Herbivores
- \_\_\_\_\_ Eat primary producers
- \_\_\_\_\_ Primary carnivores
- \_\_\_\_\_ Eat primary consumers
- \_\_\_\_\_ Secondary carnivores
- \_\_\_\_\_ Eat secondary consumers
- \_\_\_\_\_ Consumers that obtain their energy by consuming dead plants and animals
- \_\_\_\_\_ Fungi, bacteria, nematodes, earthworms, insects, scavengers
- \_\_\_\_\_ Letters K, L, and M
- \_\_\_\_\_ Letters G, H, I and J
- \_\_\_\_\_ Letters D, E, and F
- \_\_\_\_\_ Letter C



- \_\_\_\_\_ Letter A
- \_\_\_\_\_ Letter B

3. What is the source of energy for each of the following?

<b>Primary producer</b>	
<b>Primary consumer</b>	
<b>Secondary consumer</b>	
<b>Tertiary consumer</b>	
<b>Detritivores</b>	

4. Describe the efficiency of energy transfer between trophic levels.

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5. How does the amount of energy available at each trophic level affect the structure of the ecosystem?

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6. If the cells in the dead terrestrial plant material that washed into the lake contained a commercially produced toxin, what would be the likely effects of this toxin on the food web on page 2? Explain.

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7. Water cycle: What effect does each of the following processes have on the water cycle?

<b>Evaporation</b>	
<b>Condensation</b>	
<b>Transpiration</b>	
<b>Respiration</b>	
<b>Precipitation</b>	

8. Carbon Cycle: What is the role of each of the following in the carbon cycle?

<b>Photosynthesis</b>	
<b>Respiration</b>	
<b>Eating</b>	
<b>Burning</b>	

9. Nitrogen Cycle: Match the description with the correct term.

- |                    |                      |
|--------------------|----------------------|
| A. Ammonification  | D. Nitrification     |
| B. Assimilation    | E. Nitrogen-fixation |
| C. Denitrification |                      |

- \_\_\_\_\_ Soil bacteria or bacteria in the soil convert nitrogen gas ( $N_2$ ) into usable forms
- \_\_\_\_\_ Bacteria convert ammonium ( $NH_4^+$ ) into nitrites ( $NO_2^-$ ) and nitrates ( $NO_3^-$ )
- \_\_\_\_\_ Decomposers and some nitrogen-fixing bacteria produce ammonium ( $NH_4^+$ )
- \_\_\_\_\_ Plants absorb nitrates from the soil and animals eat plants or other animals to obtain nitrogen-containing compounds
- \_\_\_\_\_ Bacteria convert nitrates into nitrogen gas

10. Phosphorus Cycle: Answer the following questions.

a. What acts as the reservoirs of phosphorus in the environment?

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b. How do plants obtain (assimilate) phosphorus?

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c. How do animals obtain (assimilate) phosphorus?

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d. What is the role of decomposers in the phosphorus cycle?

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11. List three impacts humans have had on ecosystems.

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12. Describe what happens during the greenhouse effect.

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