

ASSIGNMENT

ECOSYSTEMS

NAME: _____

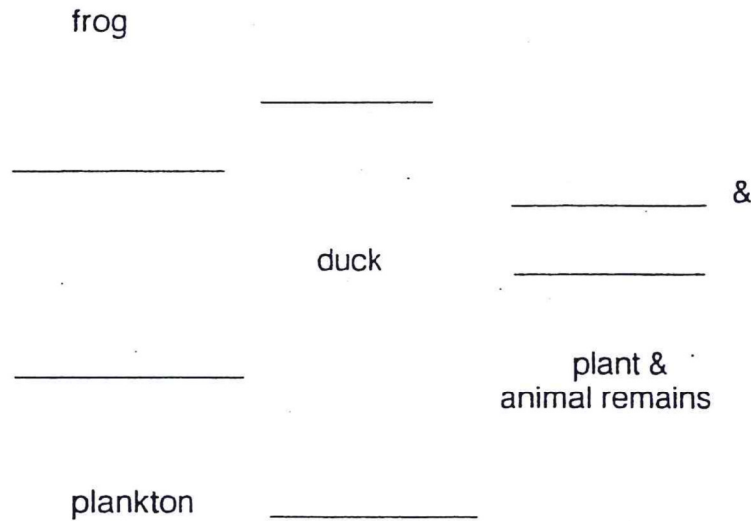
Answer all questions on the sheet. Use the following information to complete the questions:

Life in an isolated marsh provides an interesting study of food relationships that exist in nature.

This marsh is quite shallow, thus providing for a rich growth of plankton (single-celled plants which grow and are suspended in water). A thick mat of duckweed is growing toward the center of the marsh. This marsh is also rich in protozoans (single-celled animals) that rely on the plankton for a source of food. Aquatic insects are abundant as they feed on protozoans and duckweed. Often hiding in the mud, frogs eat the aquatic insects. Crayfish and snails have been observed on the bottom of the pond utilizing the plant debris and animal remains as their source of food. Ducks periodically stop to rest and feed on the duckweed. Sometimes a lucky fox will catch a duck for itself.

1. Complete the following food web which represents the marsh-community described above.

Don't forget to include the missing arrows.



2. State the feeding order (producer, primary consumer, secondary consumer, tertiary consumer or scavenger) for each of the following.
- a) plankton _____
 - b) protozoans _____
 - c) fox _____
 - d) duckweed _____
 - e) snails _____
 - f) frog _____

3. If the ducks did not visit the pond for a season, what changes would you predict in the community with respect to the following organisms? Use the terms **increase**, **decrease** or **no change** to indicate a change in population size.

- a) duckweed _____ c) foxes _____
 b) aquatic insects _____ d) protozoans _____

4. If an insecticide were to be used on the insects, how would it affect the populations of the following organisms? Use the terms **increase**, **decrease** or **no change** to indicate a change in population size.

- a) protozoans _____ c) plankton _____
 b) crayfish _____ d) frogs _____

Create a Food Pyramid of Numbers with

Grass → Grasshoppers → Shrews → Owl
 100 000 50 000 6000 1000

Create a Food Pyramid of Biomass with

Maple Tree → Rabbits → Snakes → Hawk
 200 000 kg 26 000 kg 10 000 kg 2000 kg

Create a Food Pyramid of Biomass with

Maple Tree → Deer → Wolf → Human
 820 000 g 120 000 g 16 000 g 1000 g

Create a Food Pyramid of Energy with

Beech Tree → Beetles → Robin → Falcon
 640 000 kJ 60 000 kJ 6000 kJ 1000 kJ

Create a Food Pyramid of Numbers with

Oak Tree → Aphid → Preying Mantises → Robin
 5000 100 000 10 000 2000