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.

   frog

   _____

   _____ _____ &

   duck _____

   _____ plant & animal remains

   plankton _____

2. State the feeding order (producer, primary consumer, secondary consumer, tertiary consumer or scavenger) for each of the following.

   a) plankton _____ d) duckweed_____

   b) protozoans _____ e) snails _____

   c) fox _____ 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