

Name _____
Date _____ Period ____

Oh, What a Tangled Web We Weave (Food Webs)

Warm Up

List all of the interactions you have in a day with the biotic and abiotic factors in your habitat.

Abiotic	Biotic
Definition:	Definition:
Interactions:	Interactions:

Key Vocabulary

Word	Definition	Visual
Food Chain		
Food Web		
Population		

Introducing the Marsh Ecosystem:

	Producer	Consumer	Decomposer
Definition:			
Examples from the Marsh Ecosystem:			

Part A: Lake Food Web: (use the “what eats what” handout to diagram ALL of the interactions in this food web)

Note: In Ecology, the arrows ALWAYS go to the consumer (basically, arrows show energy flow!)



Part B: Lake Food Web: (record what the food web looks like after the activity is completed!)

- 1) Consider the impact of removing the water beetle from the food web:
 - a. What living things are better off with the water beetle missing? Why?

 - b. What living things are worse off with the water beetle missing? Why?

Biology-Ecology Unit

- 2) How might the ecosystem change in response to losing one or multiple organisms? (Think about: is there room for new life? Will there be an increase/decrease to the population of something as a result of the changes?)

Analysis Questions

- 1) Describe (in general) the consequences of removing a single organism from an ecosystem.
- 2) Suppose the Hydra disappeared instead of the insects. Would this have a greater or lesser impact on the ecosystem? Explain your reasoning.
- 3) Where do decomposers fit into the food web?

Why is a decomposer's role necessary for life?

Reading—Managing Mosquitoes—see article provided to you!

Read the article and answer the following questions:

- 1) Draw a concept map or diagram showing the connections between the following items:

-Caterpillars	-Mosquitoes
-Cats	-Rats
-DDT chemicals	-Roaches
-Diseases: typhus & plague	-Thatched roofs
-Geckos	
- 2) In your own words, explain what happened when the DDT chemicals were sprayed in the area.
- 3) How was removing the mosquito in Borneo different from what happened when you removed the mosquito larva from the Lake food web earlier in the packet?

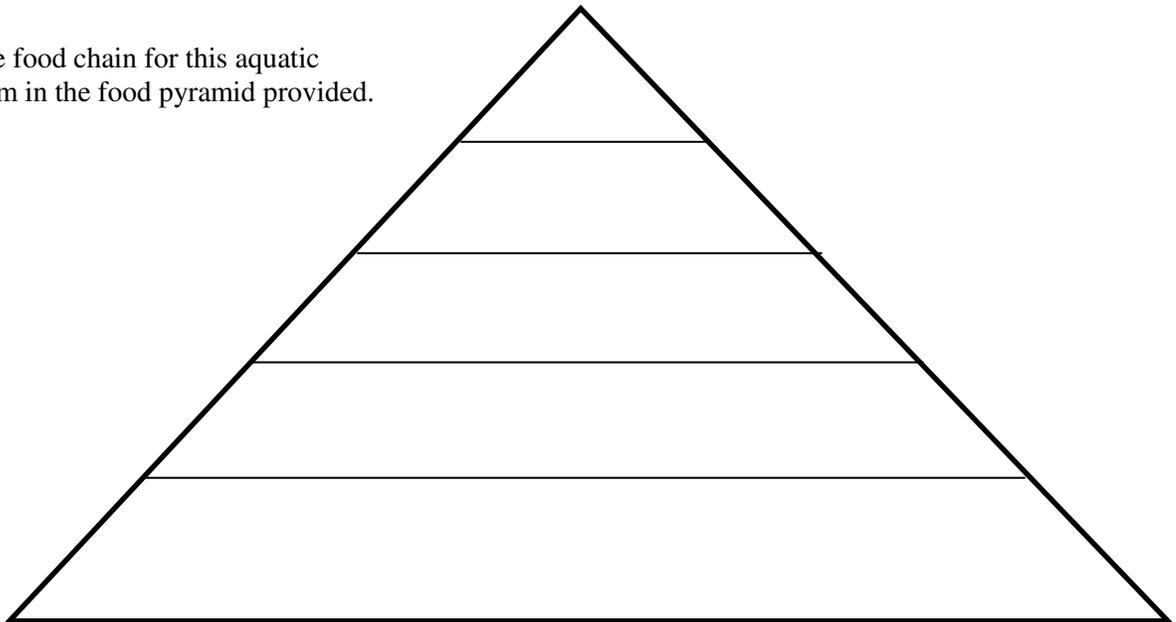
4) What might WHO have done before it began its mosquito removal program?

5) What conclusions can you draw about the importance of any one species in an ecosystem?

ECOLOGICAL NICHE	Definition
Example:	Used in context (a sentence):

Activity--Accumulation of Toxins

Show the food chain for this aquatic ecosystem in the food pyramid provided.



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Individual Data:

Organism:	Normal	Red	Orange	Yellow	Green	Blue	Total

Class Data:

Organism	Pop. Size	Normal	Red	Orange	Yellow	Green	Blue	Total
Phytoplankton								
Daphnia								
Herring								
Salmon								
Orca								

Post activity questions:

1. On the previous page of the packet, label the energy pyramid with: producers, primary consumers, secondary consumers, etc.
2. Using the class data, calculate the average number of toothpicks (sum of all colors) absorbed by a single phytoplankton. (Note: the average is = total toothpicks ÷ number of individuals)
3. Next, calculate the average number of each color absorbed by a single phytoplankton. Create a table to show calculations.
4. Use the data to calculate the percentages of each type of pollutant absorbed by a single phytoplankton.
Hint: % = [(number of toothpick color ÷ total number of toothpicks) ÷ # of phytoplankton] x 100

Biology-Ecology Unit

5. Fill in the table above by recording the data for daphnia, herring, salmon, and orca from the Excel spreadsheet.

Class Average Data (% per individual organism):

Organism	Total	Red	Orange	Yellow	Green	Blue	Normal
Phytoplankton							
Daphnia							
Herring							
Salmon							
Orca							

6. Create a bar graph (on separate paper) showing the average total % and average contamination % for each organism. Use the corresponding toothpick color for each bar.

7. At what trophic level did the accumulation (build up) of toxins begin to create health problems? Use the average number of toothpicks as evidence. Put a star above each bar graph that represents potential health problems.

8. Using the data above, what conclusions can you draw about accumulation of toxins in the food web?

9. List at least 5 top consumers found on Earth. How does biomagnification affect these populations?



<p>Biomagnification defined:</p>
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