What Eats What

Biology

Name: _____ Date: _____ Period: ___

Introduction

The interactions of organisms with their environment is an ecosystem. There are many kinds of interactions in ecosystems. Some interactions occur between living things (the **biotic** factors) and others occur with the non-living aspects (**abiotic** factors) of the environment.

One of the most important interactions among the biotic factors in an ecosystem is feeding. Feeding is important because it is the means by which <u>energy is transferred</u> in an ecosystem. In this activity, you will demonstrate the feeding relationships and their role in energy transfer among organisms in an ecosystem.

Directions

1. You will be given one of the role cards below (describing an SF Bay organism) and a ball of yarn:

Phytoplankton-- Diatoms	**Phytoplankton-- Algae**	**Opossum Shrimp**	**Copepod**
<u>Eats</u>: Nothing <u>Eaten by</u>: Opossum shrimp Copepod Anchovy Canvasback duck	<u>Eats</u>: Nothing <u>Eaten by</u>: Opossum shrimp Copepod Anchovy Canvasback duck	<u>Eats</u>: Algae Diatoms <u>Eaten by</u>: Canvasback duck Anchovy Dungeness crab	<u>Eats</u>: Algae Diatoms <u>Eaten by</u>: Anchovy Canvasback duck Dungeness crab
Anchovy	**Dungeness Crab**	**Canvasback Duck**	**Striped Bass**
<u>Eats</u>: Algae, Diatoms, Copepod Opossum Shrimp <u>Eaten by</u>: Striped Bass Chinook Salmon, Dungeness Crab,Heron, Sea Lion	<u>Eats</u> :Opossum Shrimp Copepod, Anchovy <u>Eaten by</u>: Heron, Sea Lion	<u>Eats</u>: Algae, Diatoms, Copepods, Opossum Shrimp <u>Eaten by</u>: Sea Lion, Shark	<u>Eats</u>: Anchovy Crab <u>Eaten by</u>: Heron Sea Lion, Shark
Heron	**Sea Lion**	**Chinook Salmon**	**Shark**
<u>Eats</u>: Crab, Anchovy Striped Bass, Salmon <u>Eaten by</u>: Nothing	<u>Eats</u>: Anchovy, Dungeness Crab, Striped Bass, Canvasback Duck Chinook Salmon <u>Eaten by</u>: Shark	<u>Eats</u>: Anchovy, Crab <u>Eaten by</u>: Heron,Sea Lion,Shark	<u>Eats</u>: Sea Lion,Salmon Duck, Bass <u>Eaten by</u>: Nothing

2. Hold the ball of yarn or string in your hand. Approach another student. Reveal the identity of your organism to that student. Find out the identity of his or her organism.
3. If that student's organism can eat your organism, give the loose end of your string to that student.
4. If your organism can eat that student's organism, then take the loose end of that student's string into your own hand.
5. Move on to another student, rolling out the string as you go. If the next organism can consume your organism, give that student a segment of your string to grasp. If your organism can consume that student's organism, then grasp a segment of that student's string. You may have to hold several segments of string in your hand at one time.
6. Continue in this way, moving from student to student, until your teacher calls time. *Immediately write a description of this process in the Data Section below.*

Data: Briefly describe what happened when the class completed the above procedures. Explain how this represents a **food web**. _____

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Discussion Questions:

1. Students who were playing one particular organism never got any string. They only gave it away. What type of organism did they represent? _____Why did they never get any string? _____

2. Students who were playing two other roles never gave away any string. They only took it from others. What does this represent in a real ecosystem?_____ _____

3. What does the yarn represent? _____ _____

4. Diagram a four-organism **food chain** from the SF Bay organisms above.

5. What do the arrows in a food chain (or food web) represent? _____ _____

   Does it matter which way the arrows points? _____ Explain. _____ _____ _____

6. What is the source of the energy in our model ecosystem? _____ How is this energy captured by living organisms? _____ _____ _____

7. Think! What is the fate of the energy in our model ecosystem? _____ _____ _____ _____ _____