

Grade Level: 6-8

Balancing Act

Pre-Lesson

Time Allotment

Two 45 minute class sessions

Materials

Per group:

- Food web card templates.
- Card stock, index cards or old playing cards.

Per student:

- Playing card template
- Scissors
- Pencils
- Old wildlife magazines (optional)
- Colored pencils, markers etc (optional)
- Internet access (optional)

Advance Preparation

Make copies of the card template on card stock or other paper.

Choose a habitat and develop a list of organisms that exist in a food web in that habitat. (optional)

Lesson Objectives

Students will be able to:

- Define the 7 listed vocabulary words.
- Describe how organisms are connected through both a food chain and food web.
- Describe at least two outcomes of removing an organism from a food web.

Sunshine State Standards for Late Elementary

Science:

Big Idea 17: Interdependence

- SC.7.L.17.1; SC.7.L.17.3

Vocabulary

Food Chain	Food Web
Ecosystem	Primary Producer
Primary Consumer	Secondary Consumer
Decomposer	

Background Information

The term “**ecosystem**” describes an environment where organisms interact on many levels. These interactions are important to keep the ecosystem healthy or balanced. The organisms work together to establish natural cycles, such as the carbon dioxide cycle or the nitrogen cycle.

Food chains and **food webs** are examples of organism-dependant natural cycles. All food chains and webs start with an energy source, such as the sun. **Primary producers**, such as plants and algae, are at the base of the food chain. They convert energy directly from the sun, water and soil nutrients. This energy is then passed to the **primary consumers**, organisms that eat the primary producers. **Secondary consumers** eat primary consumers, thus obtaining the primary energy through a second source. Herbivores are primary consumers, carnivores are secondary consumers and omnivores can be either.

Depending on their position in the food chain, a carnivore may be a secondary consumer, a tertiary consumer and so on. In the end, even the carnivore at the top (the top, or apex, predator) must die. When this happens, **decomposers** such as bacteria, fungi and worms break down the body of the animal, adding nutrients to the soil for primary producers to use.

If one organism is removed from a food chain it is easy to see that the animals after

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it may quickly run out of food. Removing one link breaks the entire chain. Food webs are more complex. If one organism is lost, those that relied on it as a food source might begin to over eat other organisms in the web. Another possibility is that the loss of a primary consumer or predator causes the overpopulation of a primary producer or consumer. This can create an imbalance in an ecosystem and may even destroy it.

In this lesson, students will create food web cards that will be used to play a card game. They will learn that plants and animals are interdependent and rely on one another for survival.

Initial Discussion

1. As a class, brainstorm different examples of food chains and diagram them on the board. Decide which habitats the food chains can be found.
2. Define the terms **sun/energy**, **primary producer**, **primary consumer** and **secondary consumer**. Match the terms to the food chains. Review the terms **herbivore**, **omnivore** and **carnivore** and match them to the food chains as well.
3. Discuss the importance of each link in the food chain. Analyze the outcome of the removal of any of the organisms.
4. Choose a habitat as a focus for the activity. The habitat can be any terrestrial or aquatic ecosystem. This will be the habitat the students will use when creating their cards.
5. With help from the students, diagram one food web on the board that can be found in the chosen habitat. If possible, build the web out of a food chain that was created in the initial discussion. Analyze the outcome of the removal of any of the organisms. Point out that some organisms may not have enough to eat, while others may become overpopulated and compete for resources with other organisms.

Hands-On Activity

6. Distribute the card template worksheet.
7. Explain the activity to the students.
 - They will design 10 “food web” cards that will be used in a game.
 - Each student should make one sun, one decomposer, three primary producers, three primary consumers and two secondary consumers.
 - Each card should be labeled with the habitat, the name of the organism and an example of what it eats.
 - Artwork for the card can be a drawing or a picture from a magazine or other printed source.
 - The 10 cards should exist in the same food web.
8. Provide the students with a list of pre-selected organisms, or have students research the habitat to develop their own list of organisms to use. Students should also find out what their organism eats and record it on the card.
9. To facilitate easy grading, cards should not be cut out until after they have been handed in.

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Relate Activity to Concept

10. Have students cut out cards. If printed on normal paper, have students glue food web cards to index cards or old playing cards for added strength.
11. Play the card game in groups of 4-6. Directions can be found at the end of the lesson plan.
12. After each round has been completed, students should spread out their card pile to see how the organisms are connected in a food chain.

Card Game Rules:

1. Mix the cards and place them face down in a stack. This is the draw pile.
2. Each person draws 5 cards.
3. Draw the top card and place it face up next to the stack.
4. The game starts with the youngest player and proceeds to the right.
5. To play the game, create food chains by placing a card, face up, on the top card shown on the deck. The card being played must:
 - a. eat or gain energy from the organism or;
 - b. be eaten by the organism
6. Decomposers can eat any organism in a food chain. Only a sun or primary producer can be played on top of a decomposer.
7. If no card can be played from hand, a card must be drawn from the deck until a playable card is found.
8. The game ends when
 - a. one person has no more cards to play or;
 - b. the draw pile runs out

9. Before playing a new game, spread out the cards and see the food web that was made.

Assessment

Before playing the card game, collect the card templates and assess the cards based on content using the rubric.

Extension

In groups or as a class, compile all cards and try to assemble one large food web. Assign each student to one organism and use yarn to connect the web. Invent disasters to remove organisms from the web and discuss how the other organisms might be affected.

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Food Web Card Rubric:

Student Name: _____

Student has all required cards _____/20 pts
(one sun, one decomposer, three primary producers, three primary consumers and two secondary consumers)

Student used appropriate organisms _____/20 pts

Student labeled all cards correctly _____/60 pts
(2 pts each label = 6 pts each card)
• Habitat name • Organism name • Food Source

TOTAL _____/ 100 pts

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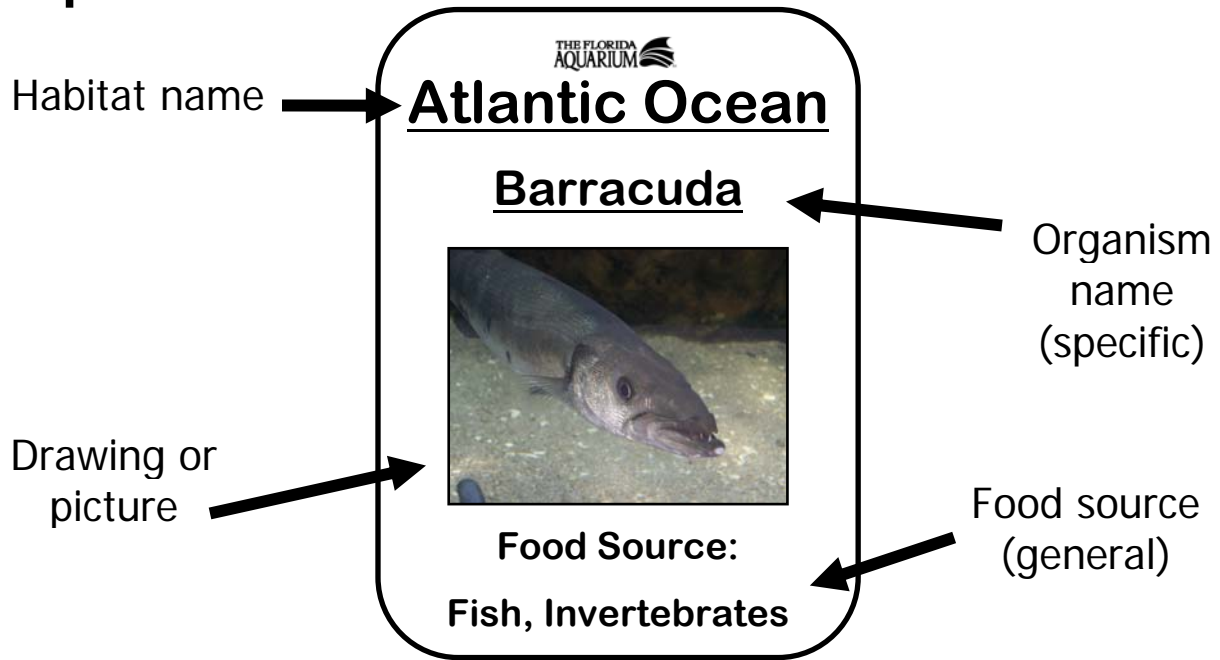
TOTAL _____/ 100 pts

NAME _____

Directions:


1. Record your habitat and the organisms you will be using at the bottom of this page.
2. At the top of each card, write the habitat and organism name.
3. Draw a picture or your organism in the box or cut and paste a picture from a magazine or from the internet.
4. List foods the organism prefers to eat. Use general names (such as "berries") instead of very specific names (such as "blackberries"). For plants, use the term "nutrients from decomposers." For decomposers, use "any organism."
5. Put your name on the back of your card.
6. DO NOT cut your cards apart until instructed to do so by your teacher.

Sample card:



<p>Habitat: _____</p>	
<p>Organisms:</p>	
<p>1. (decomposer) _____</p>	<p>6. (primary consumer) _____</p>
<p>2. (decomposer) _____</p>	<p>7. (primary consumer) _____</p>
<p>3. (primary producer) _____</p>	<p>8. (primary consumer) _____</p>
<p>4. (primary producer) _____</p>	<p>9. (secondary consumer) _____</p>
<p>5. (primary producer) _____</p>	<p>10. (secondary consumer) _____</p>


Food Web Cards



Habitat _____

Name _____


Food Source



Habitat _____

Name _____


Food Source



Habitat _____

Name _____


Food Source



Habitat _____

Name _____

Food Source




Habitat _____

Name _____

Food Source


Food Web Cards



Habitat _____

Name _____


Food Source



Habitat _____

Name _____


Food Source



Habitat _____

Name _____


Food Source



Habitat _____

Name _____

Food Source



Habitat _____

Name _____

Food Source
