

### 3.3.3 Make Your Own Food Web

#### Overview

A food web consists of all the different food chains between plants and animals in an ecosystem. The question of “what eats what?” guides the formation of each food chain, and the complexity comes from the fact that there often is not one single answer. Food chains intersect and overlap, making the image of a “web” very accurate. However, there are levels of organization that make up all food chains, called trophic levels. Producers make their own food and do not depend on other organisms for energy. Plants are a good example of producers. Consumers eat producers. Primary consumers eat plants and are called herbivores. Secondary consumers eat herbivores. Tertiary consumers eat secondary consumers and so on up the food chain until you reach the top predator. Decomposers and detritivores clean up dead plant and animal remains, including feces, and turn organic waste into inorganic substances like soil.

#### Learning Objectives

- Marine food webs follow a structure similar to terrestrial food webs.
- Dividing organisms in an ecosystem into trophic levels helps to organize the many food chain relationships among them.

#### Student Activity: Make Your Own Food Web

#### Materials

For each team:

- Access to the Internet and to a terrestrial-based food web activity
- Pictures of marine organisms printed from the Internet
- 1 flexible magnetic sheet
- Magnetic white board or other magnetic surface that can be written on
- Dry erase marker
- Scissors
- Glue stick
- Color printer (if possible)

#### Advance Preparation

Identify a class of younger students from your school or a nearby elementary school. For this activity, grades 2-4 would be ideal. Communicate with the teacher and schedule a time to visit during which you will conduct your activities. Find space to conduct Internet research, print pictures, assemble magnets, and play your marine food web games.

Divide into teams of 3-4 students that will meet with the same number of younger students for a working team of 6-8 students.

Conduct research on the Internet to find a simple terrestrial-based food web activity/game that uses commonly recognized plants and animals. You should identify one that you particularly like

that you will share with your team of young students. Some games you might find could involve physical activity or printed cards, or be online interactive simulations. Here are a few examples:

Fitting Algae into the Food Web (simple food web diagrams, both terrestrial and marine)

[https://www.bigelow.org/edhab/fitting\\_algae.html](https://www.bigelow.org/edhab/fitting_algae.html)

Food Web (online game)

<http://www.shodor.org/interactivate/activities/RabbitsAndWolves/>

Food Web Freeze Tag (activity)

[http://www.blm.gov/or/resources/recreation/tablerock/files/Food\\_Web\\_Freeze\\_Tag.pdf](http://www.blm.gov/or/resources/recreation/tablerock/files/Food_Web_Freeze_Tag.pdf)

Marine Food Web

<https://www.csiro.au/-/media/Education-media/Files/EducatorOnBoard/Resources/TAS-NPWS-Supplementary-resources-for-Lesson-1.pdf>

## Process and Procedures

1. With your team, meet with your young students and introduce them to the food web game you chose. Play the game, at the same time helping students understand about food webs, trophic levels, and producers and consumers.
2. Let your young students know that you want to make a food web game with them that uses plants and animals from a marine ecosystem. Brainstorm the types of organisms that might be in such an ecosystem. Keep the size of your list appropriate for the age group with which you are working. You might come up with some of the following ideas:
  - Fish
  - Whales
  - Sharks
  - Algae
  - Seaweed
  - Jellyfish
  - Shrimp
  - Krill
  - Plankton
  - Lobster
  - Crab
  - Starfish
  - Seabirds
  - Oysters
3. Use the Internet to find pictures of all of your plants and animals. Assemble the pictures onto one page (size the pictures to be approximately 5 cm x 5 cm) and print out your page on a color printer. Note: If you end up with extra pages of pictures, you will need another magnetic sheet.
4. Glue the printer paper to one side of the magnetic sheet, pressing down so that the whole paper is adhered to the sheet. Cut out each individual picture until you have made individual playing pieces for your food web game.
5. Help your young students make separate piles of pictures, one pile each for producers, consumers, and decomposers. Within the consumers pile, see if the students can determine if they have primary, secondary, or even tertiary consumers present.

6. Using a magnetic whiteboard, assemble the magnetic pictures into a food web. Move the pieces around until your whole team is happy. Use the dry erase marker to connect the organisms according to the marine food chain. Remember to put arrows on your lines that point away from the food and towards the consumer of the food.
7. Once your team has made a food web using your playing pieces, exchange your team's pieces with those of another team. Make a food web using new magnetic pieces.

### Assessment

With your team, put all your magnetic pieces into a gallon-size resealable plastic bag. Then, write directions for your food web activity. Consider what your young students needed to know in order to successfully make a marine food web. Include steps in your directions that teach these concepts (understanding trophic levels, dividing the organisms into groups, thinking about “what eats what?”, what provides what with energy, directions of arrows, etc.). Finally, draw a diagram that can be used as an answer key for your marine food web. Put the directions and answer key in the plastic bag and turn it in to your teacher.

## Expected Outcomes

### **What's the take-away?**

Breaking down a complex topic to explain to young learners often serves to deepen one's own understanding of a topic. Food chains and webs can be understood at a deeper level when the role of each organism in a web is considered. Producers, primary consumers, secondary consumers, tertiary consumers, decomposers, and detritivores all have their own place in the web and perform a different role. Visual activities and using models can help young learners more readily understand complex topics.

### **What does the student work product look like?**

Preparation will be the key to success in this activity. Be sure that students have ample time to rehearse teaching the lesson before they implement the activity with the younger students. Consider suggesting students use index cards with written reminders to help them teach a successful lesson.

### Assessment

Each group of students will generate written directions and an answer key for the game their group designed. Students should keep in mind their audience (the younger children) and use appropriate vocabulary and sentence structure when writing the directions.