

# Food for Thought



**Focus:** Food chains and interdependence among endangered species

**Grade Level:** 3-8

**Connection to other Subjects:** English/Language Arts

**Correlation to National Standards:**

*National Science Education Standards (NSES):*

Content Standard C: Life Science

Grades K-4: Characteristics of organisms; Organisms and environments

Grades 5-8: Populations and Ecosystems; Diversity and adaptation of organisms

Grades 9-12: Interdependence of Organisms

Content Standard F: Science in Personal and Social Perspectives

Grades K-4: Changes in Environments

Grades 5-8: Populations, resources and environments

*American Association for the Advancement of Science (AAAS):*

Grades 3-5: The Living Environment: The Interdependence of Life

Grades 6-8: The Living Environment: The Interdependence of Life  
Human Society

**Focus Question:** What happens when an animal leaves an ecosystem?

**Learning objectives:** The students will be able to explain why threatened or endangered species are important to the ocean.

**Materials:**

Yarn

Cards or stickers with species names

Journal

Food chain diagrams

The Kid's Times

**Teaching Time:** 1 class of 45 minutes

**Key words:**

Interdependence

Food chains/food webs

Ecosystem

Threatened and endangered species



### **Background:**

When asked why people should save threatened or endangered marine animals or fish, children will often answer because they are pretty or because they are nice. While this may be true in the mind of a child, the reason lies in the food chains of the ocean. Each creature in the ocean is part of a food chain. Species listed under the Endangered Species Act (ESA) or the Marine Mammal Protection Act (MMPA) play integral roles in the food chains of which they are a part. If one species goes extinct, the food chain collapses. This lesson will remind students of the importance of interdependence, allow them to explore several simple food chains of currently endangered species and finally, allow students to investigate food chains of other species listed under the ESA or MMPA.

### **Introduction:**

Give each student a diagram of one of the endangered species food chains below. Also review the concepts of interdependence and food chains if those have been previous topics of instruction. If not, this lesson could start the discussion. If the students are unfamiliar with these terms, explain the food chain diagrams as a way to see how marine species are connected to each other. The concept can be solidified at the end of the lesson.

### **Lesson:**

The class is going to play a modified version of a game called Web of Life to show the interdependence of life in the ocean as it relates to endangered species. The food chains in the game and lesson are shown in the attached diagrams.

Divide the class into food chain groups by endangered species (fin whale group, Johnson's sea grass group, etc.) Give one card to each student with each member of the food chain. Have the children stand around a large open space close enough to gently toss a skein of yarn.

1. Each player wears a card and the largest of each food chain has a skein of yarn. This player then has to 'catch' his most likely food sources from the remaining players based on size. So the shark might catch the seal or the green turtle. The shark holds one end of the yarn (leaving a couple of feet dangling), stays still, and then passes the ball to the seal who then has to catch herring, cod, squid, rockfish or Pollock while still being linked to the shark. For those students with cards that are part of a food chain, but did not have yarn tossed to them, you can cut pieces of the yarn to link them to the other lower level prey so everyone is connected. Make sure the students do not break the yarn chain. Then, in the case of the green turtle, the next student can connect to the Johnson's sea grass.
2. Once all the children are connected in some way, remind the students about interdependence and how all the creatures of the oceans are connected in some way.



3. Have the endangered species in each chain cut their yarn and sit down. Discuss with the children what happened to the web. Relate this to real life if a marine species goes extinct.

**Closure:** Review the concepts from the lesson. Emphasize that scientists are working to save threatened or endangered species because of the roles they play their ecosystems.

**Evaluation:**

- The students can create additional food chains for listed (ESA/MMPA) species using information from the Kid's Times reading and web research. They can also write a journal entry answering the following questions:
- What did you learn today about the relationship between food chains and threatened or endangered species? Why should people care about the food chains for threatened and endangered species?

**Resources:**

- The Kid's Times by NOAA Fisheries Office of Protected Resources
- For information on the Endangered Species Act and further background information on protected species, please visit the Office of Protected Resources website at [www.nmfs.noaa.gov/pr/](http://www.nmfs.noaa.gov/pr/)



**NOAA Fisheries**

Office of Protected Resources

[www.nmfs.noaa.gov/pr/](http://www.nmfs.noaa.gov/pr/)

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