



The Food Web Game

Grades 3-5

Lesson Summary

Students participate in a food web “string game” in order to learn about the connection between Antarctic animals.

Prior Knowledge & Skills

- Basic knowledge about the food chain
- Basic knowledge about animals in the Antarctic

AAAS Science Benchmarks

The Living Environment

Interdependence of Life

Common Themes

Systems

Models

NSES Science Standards

Life Science

Characteristics of Organisms

Organisms and Environments

Teaching Time: 15-30 minutes

Materials

- Pencils
- Index cards
- String
- Antarctic Food Web Blackline Master #12 (included)

Advanced Planning

Preparation Time: 10 minutes

1. Review the instructions
2. Gather the necessary supplies.

Recommended Reading:

Information on the website: “The Marine Food Chain” found at

<http://drake.marin.k12.ca.us/stuwork/ROCKwater/PLANKTON/Food%20Chain.htm>

NASA Quest Educational Website

http://quest.arc.nasa.gov/antarctica2/t_guide/index.html



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1.5.2 The Food Web Game

Special thanks to the Gulf of Maine Aquarium, source of the original Activity

<http://octopus.gma.org/surfing/human/ozonephyto.html>

Materials

- pencils, index cards, string
- Antarctic Food Web [Blackline Master #12](#)

Engage

Increases in the ozone hole will result in damaging ultraviolet-B (UV-B) rays penetrating deep into the ocean. Increases in UV rays will harm young marine life, such as floating fish eggs, fish larvae, juvenile fish, and shrimp larvae. UV-B radiation also affects phytoplankton movement: orientation (movement up or down in the water in response to the amount of light) and motility (moving through the water). Inability to properly position themselves in the water column dramatically inhibits their ability to photosynthesize. Phytoplankton are called primary producers because they photosynthesize their food from sunlight. If phytoplankton are harmed by increases in the ozone layer, how will others in the Antarctic food web be affected?

Explore

Find out what will survive UV-B radiation in Antarctica.

Procedure

1. Make cards for each item in the food web. Assign students to various items.
2. Give one end of the string to the student who is phytoplankton. Have the class discuss and decide what element eats what. Pass the free end of the string along, up the food chain to the larger predators.
3. Increase the amount of UV-B radiation in the food chain and "kill off" the phytoplankton.
4. Have students let go of the food web string as they no longer have any food

- to eat, and have the higher creatures pull in the free end. When the free end passes through their hands, they no longer have food to eat!
5. Discuss implications for the waters surrounding Antarctica.

Expand/Adapt/Connect



Search on-line for information about the hole in the ozone layer over Antarctica. Given what you know about the role of phytoplankton in the food web, why are scientists concerned about thinning of the ozone layer? How will increases in the ozone hole harm young marine life and affect phytoplankton movement?

Look up the number of daylight hours at different latitudes as spring goes into summer in Antarctica. Contrast length of daylight in your area with what scientists in Antarctica are experiencing. Palmer Station is at about 64 degrees S.

Suggested URLs

Information about plankton, krill, fish and squid.

<http://www.terraquest.com/va/science/environments/m.environments.html>

Excellent Antarctic Food Web lesson "Who Eats Who In the Antarctic?" by Kim Kovich.

<http://www.intercom.net/local/weeg/antarct7.html>

AGU report on the effects of UV on phytoplankton in the Southern Ocean.

<http://earth.agu.org/revgeophys/smith01/node18.html>



Last Update: 1/18/97

Comments on the LFA Web site: [Webspinner](#).

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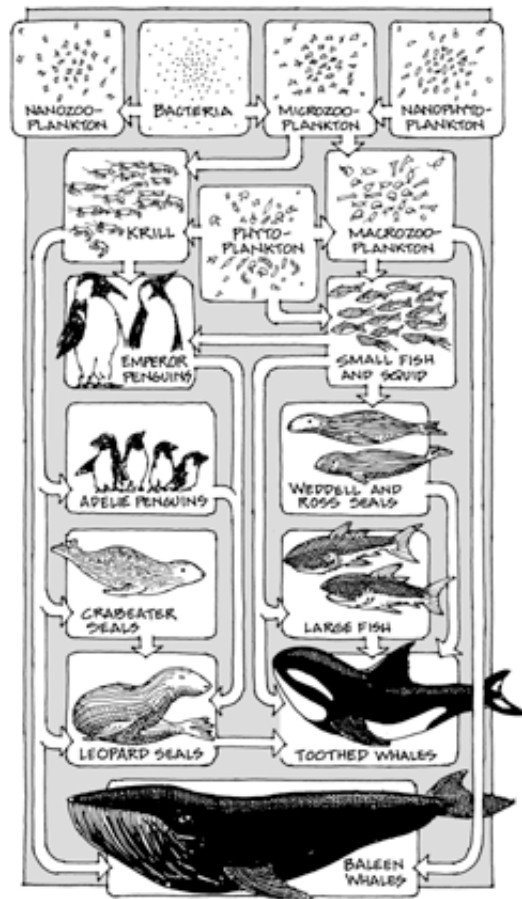


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DONALD JAMES IS THE RESPONSIBLE NASA OFFICIAL FOR NASA QUEST.

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Antarctic Food Web



courtesy of *The Gulf of Maine Aquarium* website

Blackline Master #12
