**Name of Person Submitting Lesson:** Amber Lancaster

**Date:** 2.9.2013

**Title:** Antarctic Food Web

**Topic:** Life Science: Ecology, Organisms and their Environments, Environmental Studies, Polar Science

**Region:** Antarctic

**Completion Time:**  About 1 period

**Permission:** Download, share & remix

**Grade Level:** Middle School & up

**Overview:** One of the first things to understand about the Antarctic ecosystem is what kinds of animals actually live there. This lesson provides a basic introduction to important Antarctic wildlife and how they interact with each other.

**Objectives:**

1. Students will be able to create a food web of the Antarctic ecosystem.
2. Students will be able to identify the difference between carnivores and herbivores (consumers) and plants & phytoplankton (producers).
3. Students will be able to identify how any two organisms in the ecosystem could affect each other.

**Materials:**

1. Set of Antarctic wildlife cards for each group
2. Big sheet of paper for each group
3. Scissors & glue
4. Markers

**Lesson Preparation:**

1. Make copies of Antarctic wildlife cards for each group in your classroom.

**Procedure:**

1. Ask students if they are carnivores or herbivores? Then ask students if they are consumers or producers? Most students will know the answer to the former but not the latter; explain each definition.

**Producers** make their own food (usually using energy from the sun).

**Consumers** eat producers (getting their energy from the producer).

1. Make a list on the front board of all the animals that students know live in Antarctica. (If students mention polar bears, remind them that live in the North Pole, but not the South Pole).
2. Tell students they’ll be exploring some other wildlife that exists in Antarctica. At this point, pass out materials to each group and have students quickly cut out their Antarctic wildlife cards.
3. Ask them to find two animals, one that eats another and to put them on their poster sheet and then draw an arrow between them. Tell them to keep reading the cards and adding more organisms on to their paper. If a consumer eats more than one type of organism, there should be an arrow to each organism it consumes.
4. Wander through the classroom giving feedback to student groups.
5. Using a green marker, have students circle all the producers on their poster. Using a red marker, have students circle all the consumers.
6. Ask two different students to pick two different organisms (e.g. leopard seal and krill). Once they’ve done that, model an explanation of how those two different organisms might interact or affect each other. A good prompting question is “How would this organism (leopard seal) be affected if all of these other organisms (krill) died?” To help students see this more clearly, you can remove the krill from the picture and prompt them to discuss what other organisms would eat in the absence of the krill.
7. Have students randomly pick a few different organism pairs and write about how each organism affects the other on a sheet of paper.

**Extension:**

Although this activity is written simply, these cards can be used in a variety of ways to introduce Antarctic organisms and their relationships with each other. Ask students how scientists know about these relationships and how these relationships could be studied. (Observing directly, studying stomach contents of dead animals, studying fecal matter, taking samples of carbon and nitrogen isotopes).

These cards and food webs can also be used for discussing energy flow, and the carbon-oxygen cycle.

**Resources:**

http://www.sde.ct.gov/sde/lib/sde/pdf/curriculum/gifted\_and\_talented/eco\_book.pdf

**Assessment:**

Assessment should happen as the teacher is walking around and in addition their organism pair writing should be collected at the end of class.

**Author / Credits:**

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Nadine Orejola (pictures)

Adapted from Eureka and Ecosystems, Project CONN-CEPT

**File Attachments:**

antarctica food web cards.docx

**Standards:**

US.NSES.5-8.sci.C.d and US.NSES.9-12.sci.C.d