



Grades 4 and 7, Grade 4 and Secondary 1 Activity

General Description

Although it is a key actor in the polar food web, the Arctic hare is not widely known, especially in comparison to the Arctic fox or polar bear. In this activity, students will be prompted to ask themselves about the role it plays in the Canadian Arctic food web.

Links with the Common Framework of Science Learning Outcomes

- Grade 4: 302-3 -- Classify organisms according to their role in a food chain.
- Grade 7, secondary 1: 306-3 -- Describe interactions between biotic and abiotic factors in an ecosystem.

Links with Other Subjects

- Language
- Social Studies (Geography)

Duration

- 10 minutes for the game only
- 40-50 minutes for the entire lesson, not counting student work time.

Preparation

Before conducting this activity in the classroom, you will need to:

- visit the Web site [Ukaliq: The Arctic Hare](http://nature.ca/ukaliq) (<http://nature.ca/ukaliq>) and read the sections relating to the organisms mentioned in the game: Characteristics, Habitat, Eat and Be Eaten.
- draw up a list of the eight actors in the game [Build a Food Web](#) on the site and cut out the words so they can be put up on the board: Inuk hunter, Arctic wolf, Arctic fox, Snowy Owl, Arctic hare, Arctic willow, purple saxifrage, flea
- do the activity on the site yourself so that you fully grasp the 'click and drag' concept and see all the possible food chains. These are listed below.



Food Chains in Build a Food Web

Chains are expressed vertically in the columns below.

Inuk hunter (hunter)	Inuk hunter
Arctic wolf (wolf)	Arctic wolf
Arctic fox (fox)	Arctic fox
Snowy Owl (owl)	Snowy Owl
Arctic hare (hare)	Arctic hare
Arctic willow (Aw)	purple saxifrage (Ps)

hunter	hunter	hunter	wolf
fox	wolf	wolf	fox
owl	fox	owl	owl
hare	hare	hare	hare
Aw and Ps	Aw and Ps	Aw and Ps	Aw and Ps

hunter	hunter	hunter	wolf	wolf	fox
fox	wolf	owl	fox	owl	owl
hare	hare	hare	hare	hare	hare
Aw and Ps	Aw and Ps	Aw and Ps	Aw and Ps	Aw and Ps	Aw and Ps

hunter	wolf	owl	fox	hunter	hunter	hunter	wolf	wolf	fox
hare	hare	hare	hare	fox	wolf	owl	fox	owl	owl
Aw and Ps	Aw and Ps	Aw and Ps	Aw and Ps	hare	hare	hare	hare	hare	hare

hare	flea	hunter	wolf	fox	owl
Aw and Ps	hare	hare	hare	hare	hare

Required Materials

- computer with Internet access
- coloured pencils.

Objectives

Students will:

- discuss the interrelations among the different Arctic-dwelling organisms
- draw Arctic-dwelling animals
- ask themselves about the interrelations among the animals of the Arctic
- use an interactive Web-based game to discover a few food chains, as well as part of the Arctic food web.



Introduction

Ask students to tell you about animals that live in the cold regions of Canada. If they name animals on the list of words you have cut out, put the words on the board. Ask them to tell you what these animals need to live: water, food, shelter and territory.

Development

Discuss these animals and the constraints of their habitat (extreme cold, wind, etc.) in detail. Put up the names of the other animals that have not been mentioned and touch on them before moving on.

Then ask students if they are familiar with the 'predator-prey' concept. If yes, move on. If not, take the time to explain that a predator is an organism that attacks and eats another organism. Accordingly, the prey is the organism that is attacked and eaten. It would be a good idea to ask the students to give a few examples, or you could provide some: the cat and mouse are a classic example. Before going any further, students also need to grasp the concepts of the food chain and food web. Of course, they will be better understood during the Web-based activity, but it is important for students to get the basic idea before they go to the site.

Again, if you have already gone over these concepts with your students, then you can simply skip this step. In short, a food chain is a way of looking at 'who eats whom'. Actors of the chain are usually linked by arrows to indicate the **direction of energy transfer**. Combining several food chains that share actors creates a food web.

Once these concepts are well understood, you can present the food web game [Build a Food Web](#). Guide students to the game's Web page. Tell them to click on the images to find five chains with two actors, five chains with three actors, two chains with four actors, one chain with five actors, and a final chain with six actors. They need to remember to write them down. And, it will be all the better if they can find more!

Note: The Arctic hare must be included in each of the food chains.

Conclusion

Ask students to study a few pictures on the site in order to get a good idea of the Arctic landscape and the activity of the Arctic hare.

Suggestions for Student Work

- Grade 4 -- Students draw two of the food chains that they found (four or more actors) and describe in writing how the different actors interact.
- Grade 7, secondary 1 -- Students draw two of the food chains that they found (four or more actors) and describe in writing how the different actors interact. The teacher challenges them to add another member (one that was not part of the activity) to each of the chains.

Expanding the Lesson

- Grade 4 -- Students draw a food chain with actors from your region and compare it to one of the Arctic food chains.
- Grade 7 -- Students include abiotic factors in their work.