

Inhabitants of the North



Learning Objectives

Students will be able to:

- Describe a selected species of wildlife and its needs.
- Suggest effects of climate change on people and wildlife in Canada's North.



Method

Students adopt identities of inhabitants of Canada's North and predict how climate change might affect them and their descendants in 50 years.



Materials

- Pen and paper for notes
- Name cards or materials for hats
- "Inhabitants of the North" profiles (enclosed)

Background

Life in Canada's North is a complex web of relationships between people, animals, plants and the land itself. As this delicate balance is disturbed by changing conditions, such as warmer temperatures, pollution and natural resource extraction, every living thing is affected. Some of the changes expected for Canada's North are described below:

- Sea levels are rising as polar ice melts. If predictions are correct, all summer ice will disappear from the Arctic by the year 2100. The ice sheet of Greenland, alone, contains enough water to raise global sea levels by six to seven metres. Any land near sea level today will be flooded if this occurs.
- As the land warms and the permafrost melts, the treeline will creep northward. With the new forests will come species (including diseases and parasites) not historically found here. Many northern species may become extinct as they are replaced by southern species better adapted to the new conditions.
- We are currently seeing a loss of pack ice off the coastal regions. Without these key winter feeding areas, the polar bear may become extinct.
- Traditional knowledge of ice and snow is becoming unreliable because conditions are no longer predictable. The way of life that has allowed the Inuit to survive for thousands of years in one of the harshest environments in the world is being undermined and lost.

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CanadianWildlifeFederation.ca/Education

In Advance

- Create individual “profile” cards by photocopying and cutting out the templates provided in this activity.

Activity

1. Divide your class to form discussion circles (with six to eight students in each circle).
2. Give each student a “profile” card so that each may play the role of an inhabitant of Canada’s North in his or her circle. Students can make paper hats or name cards to identify their role.
3. Have students read their profiles and describe their habitat needs to members within their circle. (Habitat includes water, food, shelter and space arranged just right for each species.)
 - Ask students to compare their needs with the needs of other members in their circle.
4. Let students brainstorm and then predict what might happen to their habitat by the year 2050. Have them identify positive and negative effects.
5. Finally, have students brainstorm about actions that could help reduce negative effects arising from the anticipated changes.

Extensions

- **For older students:** Let students research their "profiles" in more detail and have the class develop electronic presentations of a plan of positive actions that could minimize harmful effects of changes in Canada's North. Ask students to present their suggestions at a school event such as one for National Wildlife Week.
- **For younger students:** Have students draw a diagram of a food web formed by the organisms in the discussion circle. Let them modify the web without their organism and discuss the results.

Evaluation

- List three effects climate change will have on your organism.
- Suggest three things you can do to slow down climate change.

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Inhabitants of the North Profiles

Exploration geologist: As an exploration geologist, I look for oil for a large oil company. My job is to find oil resources that can be developed. I need help finding my way around in Canada's North. The local ecotourism operator and a local Inuit hunter are very knowledgeable about the land and how to travel across it. When I am out on the tundra I live off the land as much as possible.

Diamond miner: I spend two weeks at a time away from my family working in a diamond mine. I once lived off the land, but it was getting more and more difficult to make a living to support my family. Now, with a steady pay cheque, I can give my children lots of store-bought food, heat and toys. I go out on the land whenever I can because I like to stay connected to the old way of life. If the oil company finds deposits close to my community, the new development might mean a job closer to home.

Ecotourism operator: I am an entrepreneur. I make a living by taking tourists out on the tundra. My business was built on taking sportsmen on a hunt. Today, my clients are also interested in learning about Canada's North and experiencing it in different ways, such as by photographing the landscape and animals. I have adjusted the services I offer to accommodate their interests. Sometimes I hire a local Inuit hunter to talk about the traditional Inuit way of life and how climate change is affecting his relationship with the land. My business depends on having access to unspoiled wilderness.

Traditional Inuit hunter: I live off the land, hunting and trapping just as my ancestors did for 13,000 years. Though my ancestors used dog sleds to travel, I use snow machines and all-terrain vehicles. I also use firearms and the latest in technology. I hunt caribou in the fall and trap Arctic fox in the fall and winter. I also harvest fish, seal and the odd polar bear. My last bear pelt sold for \$2,000. I sometimes can earn extra cash by guiding people or by giving talks to ecotourism groups about the traditional Inuit. This extra cash comes in handy, especially following years when the lemming population is low and there are few or no foxes to trap. The last time I went hunting I noticed the weather is not as predictable as it used to be.

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Inhabitants of the North Profiles (continued)

Arctic willow (or rock willow): I live on the tundra and am between 15 and 20 centimetres in height. I am one of the most northern woody plants in the world. I am a shrub. I can live very long — up to 85 years. To protect me from the wind, my leaves are covered in long silky hairs. I can take on many shapes, but I generally trail across the ground keeping low and out of the wind. Permafrost keeps my roots shallow. I like dry habitat. My leaves and catkins (flowers) unfurl at the same time in the spring and allow me to take advantage of the short growing season. I produce either male or female flowers, so I need the right neighbour for pollination to occur. Just about all herbivores of the Arctic like to eat me, including caribou, muskox, Arctic hare and lemmings. Visit inaturalist.ca for more information about me.

Collared lemming: I am a mouse-like rodent with small ears and a short tail. I am the only small mammal to venture into the Northern Arctic ecozone. In summer, I am brownish with a chestnut collar and a black stripe down my back. In winter, I turn white and grow an extra-long, tough nail on each front foot to help me dig through snow and ice. I am active under the snow and ice all winter; I feed on willow, and I find shelter in my globular nest of grass. I can have up to three litters of young per year. Many predators, such as the ermine, Arctic fox, gyrfalcon and snowy owl, rely on me as a source of food. Even people suffer when my numbers are low because they lose income when there are no foxes to trap. There is no question that I am a key organism in the balance of life in Canada's North. Visit www.hww.ca for more information about me.

Barren ground caribou: In spring, I migrate with my herd hundreds of kilometres north from the taiga onto the tundra to the traditional calving (birthing) grounds. I feed on willow and other plants all summer. Biting insects drive me crazy; sometimes I run frantically for many kilometres to get away from them. In the fall, I return to the taiga in the south for the mating season known as the rut. My fall and winter food is almost entirely lichen, a plant that I get by digging food pits through the snow. The antlers of males and non-pregnant females fall off in late fall or early winter, leaving pregnant females the dominant animals in my herd. Many of my kind are killed and eaten by wolves, people and sometimes bears. Other carnivores on the tundra will often feed at the leftovers from a wolf kill. Get to know me by visiting www.hww.ca.

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Inhabitants of the North Profiles (continued)

Canada goose: Each spring, I return to the place where I hatched. For me, it happens to be in Canada's North. I spend my first year with my parents, learning migration routes by following them south to southern Canada or as far as Mexico in the fall, and then back north in the spring. I mate for life. My mate and I raise our goslings. Mom incubates the eggs while Dad stands guard. He's good at it, too; an agitated goose can deliver severe blows. Ask any Arctic fox about the hazards of taking eggs for dinner. Like all geese, I have to moult and replace my worn-out feathers. That means I cannot fly for four to five weeks each summer. I am very vulnerable to predation from foxes, wolves and people during this time. Learn about me at www.hww.ca.

Arctic fox: I am the smallest member of the dog family in Canada (and am about the size of a large domestic cat). I am white in winter and two-toned brown in summer. My favourite foods are lemmings and Canada goose goslings and eggs. In years when lemmings are plentiful, my numbers swell. In years when the lemming population is low, my numbers dwindle. I really suffer following a bad lemming year if the weather also prevents geese from nesting successfully. During these years I may travel for hundreds of kilometres looking for food. I have more babies per litter than any other mammal in the world with an average litter size of 11. Once my brood starts eating solid food, my mate and I have to hunt 30 lemmings a day. This number increases to 100 per day by the time the pups are ready to leave the den. That adds up to 3,500 to 4,000 lemmings per litter. Get to know me by visiting www.hww.ca.

Polar bear: My thick winter coat of guard hairs, underfur, and a layer of fat beneath my skin keeps me warm in the cold Arctic temperatures. Although my fur appears white or cream-coloured, it is actually translucent and reflects sunlight to my black skin to help keep me warm. I rely on sea ice to hunt my favourite meal, ringed seals. I have a great sense of smell and can detect seal breathing holes up to a kilometre away! My large front paws make me an excellent swimmer and are helpful for catching seals. When pack ice melts in the summer, I go ashore and become very inactive to conserve energy, living off my fat stores and scavenging carcasses when I find them. I excavate a den in October, give birth to cubs over the winter, and we break out of the den in March or April. I usually have 1 or 2 cubs, and we remain together as a family until the cubs are two and a half years old. Learn more about me at www.hww.ca.

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