



Teacher's Guide

Climate Change & Polar Bears **NATURE Science Education Series**

Grade Levels:

7-12

Subject Areas:

Life Sciences
Earth Sciences
Ecology

Synopsis:

Provides a thought provoking comparison of polar bears and Northern grizzlies as global warming affects their behavioral patterns and their chances for survival. Although polar bears evolved from grizzly or brown bears, they never hibernate and under normal circumstances, hunt throughout the winter searching for seal blowholes in the frozen Arctic Ocean. When forced to swim underwater, polar bears are no match for their speedier opponents. The fact that seals form 90% of a polar bear's diet helps viewers understand why so many bears are dying as a result of climate change. Segments include the birth, infancy, and death of polar bear cubs, and scenes of polar bears raiding garbage dumps in an effort to find food. As grizzlies move north they have far more chance of surviving and although interbreeding of the two species has occurred, cubs are raised either as polar bears or grizzlies. The conclusion suggested by the program is that adaptation to changing climatic conditions will not occur fast enough - polar bears are an endangered species.

Learning Objectives: Students will:

- Compare and contrast the diet and lifestyles of polar bears and northern grizzlies.
- Describe the adaptations to their Arctic environment that polar bears have made over time.
- Explain why all polar bears, but particularly mothers and their cubs, are so threatened by global warming.
- Describe how they have modified their eating habits as a result of global warming.
- Discuss the probability that polar bears are an endangered species that needs to be protected.

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Vocabulary:

plankton, narwhal, permafrost, carnivore, guillemots

Pre-Viewing Discussion:

What do you know about polar bears? How do their behavioral patterns differ from those of brown bears or grizzlies?

Under normal conditions, what foods do polar bears eat?

Why is it becoming more difficult for them to find adequate food sources?

Do you think that climate change will affect the lives of Northern grizzlies? If their environment gets warmer, what are they likely to do? Will it be easier for them to survive than it will be for polar bears?

Post-Viewing Discussion:

What adaptations have enabled polar bears to survive on Arctic icecaps? Why do some biologists consider them to be marine mammals?

How large is a newborn polar bear cub? How long will the mother go without food before she and her baby attempt the journey to their ice-bound habitat? What happens to many polar bear cubs before they reach the ice?

Why can't polar bears learn to live on insects, berries, and salmon as northern grizzlies do? Why isn't interspecies mating the answer to the polar bear's dilemma?

Do you think that governments should declare the polar bear an endangered species? Why or why not?

Further Activities:

Find out how citizens in Churchill, Manitoba, deal with their polar bear problem. Consider other options that might remedy the situation or make it easier on the bears.

Further investigate how plankton released by melting ice caps is affecting wildlife populations.

Research the design of polar bear exhibits in zoos in North America to determine how biologists, architects, and engineers work together to make the bears feel at home.

Find out how you could become a wildlife biologist involved in polar bear rescue.

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