

Title: **Habitat and Climate Change**

Grade Level(s): **2**

Time/Date:

School:

Teacher:

Directions to school, class:

Contact Info:

Ontario Curriculum Connection: **Life Systems: Grade 2 – Growth and Change in Animals**

Vocabulary: Words & Concepts your class may be learning, look these up yourself too!

Polar bear – a white carnivorous bear living in the arctic

Carnivorous – feeding on meat

Arctic – the North polar region of the world

Climate Change – changes to the dominant weather conditions of an area

Habitat – the natural home of an animal

For the polar bear habitat, ice is an essential component.

Materials and Equipment: List these before and while you plan and revise so you're prepared.

Chalk and chalk board

recycled paper for game 'chips', pictures of polar bears from recycled magazines

classroom map showing arctic or picture from recycled magazine showing arctic.

What is your class accomplishing?: Learning & Activity Goals, Objectives

- **Make the connection between human action, climate change, thinning polar ice, and polar bear endangerment.**
- **Identify ways in which humans can affect animals**
- **Describe features and conditions of the environment that support healthy polar bear growth**

PROCEDURE

The Spark: Introductions, Demonstrations, Show and Tell, Topic Intro (Break the ice!) ~5-10min

Introduce yourself in a fun way. Show picture of polar bear and ask class to identify the animal.

What do polar bears eat? Seals. Where do polar bears live? Arctic. On ice primarily. Can you spell 'arctic'?

What is the weather like in the arctic? Cold. Write 'arctic' on chalkboard. With classroom map, show geographical location of arctic. What do polar bears have covering their bodies to allow them to live in the cold weather? Fur & fat. Where do seals live? Do they live on the land? No, Polar bears are excellent swimmers.

Brainstorming, Getting ideas, Connecting ideas (assess their knowledge!) ~10-20min

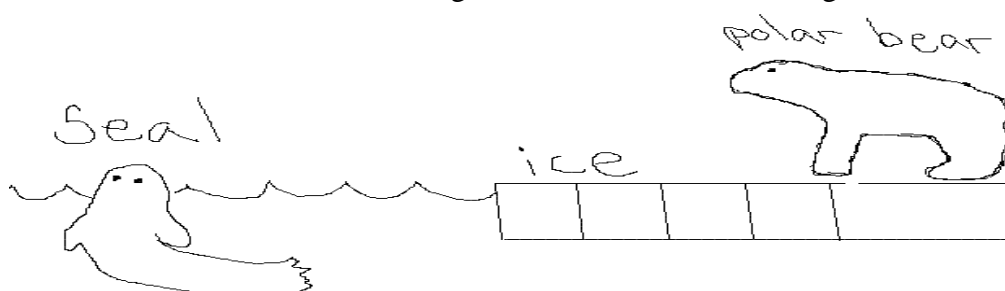
What happens to water in the winter time? What sport can you play in the winter time? How do people fish in the winter? Where do they stand? Like polar bears, people stand on ice to fish. How do polar bear access the seals? They walk on ice, and swim. What do you need in order to be healthy? What enables a polar bear to be healthy? Proper food. Seals. What happens to ice after it leaves the freezer? Will the polar bear be able to eat if there is no ice? Although polar bears can swim, they are not used to swimming as much as they must swim when sea ice is melting.

Introduce the concept of climate change. *Has anyone heard of climate change? What is climate? Weather conditions in a region. What will happen to the north pole if the climate warms? Melting/Diminishing ice. How/why does the climate warm? Cars, industry/factories (tie in for the ice bridge game)* Elaborate on the way our actions change the climate, causing ice in the arctic to melt and polar bear endangerment.

Activity, Game, Exercise, Debate, Puzzles, Problem Solving, Role Play ~10-30mins

The Ice Bridge Game

On the chalkboard, draw something that resembles the following:



The class will work together to try and build an ice bridge from the polar bear to the seal. Ice blocks are added to the existing ice bridge by erasing water and drawing an ice block. The number of additional ice blocks required in order to reach the seal is decided by the ecoMentor; 4 may be adequate. Ice blocks are awarded for correct answers to the questions listed below. In the case where no student can answer the question, a 'chip' (made from recycled paper) is chosen from a bag by a class volunteer. Chips with a biker or a person walking result in no change to the number of ice blocks. Chips with a factory or car result in the loss of an ice block. The class wins when the ice bridge reaches the seal. The game may be repeated as necessary.

1. *What colour is a polar bear and why is it beneficial for the polar bear to be this colour?*

A: White, for camouflage against the white snow.

2. *Name three characteristics of a polar bear that enable a polar bear to live in the arctic?* **Fur coat; body fat; strong sense of smell to locate prey (can smell a seal up to 32km away); birthing in dens to protect new borns from harsh arctic environment; furred paw pads; large claws for catching prey and clambering over blocks of ice; sharp teeth; excellent swimmers (can swim up to 100km continuously)**

3. *About how heavy is an average adult polar bear?* A.50kg B.150kg C.250kg **D.450kg!**
(The equivalent of 7 adults.)

4. *How heavy can polar bears be?* A.up to 500kg B.up to 600kg C.up to 700kg **D.up to 800kg!**
The equivalent of 10 adults. The largest recorded mass is 1002kg.

5. *How tall is a polar bear when standing on it's hind legs?* A.1m B.2m. C.3m **D.up to 4m**
Higher than most ceilings.

6. *Where is the arctic?* **Northern regions of the world.**

7. *What is the climate in the arctic?* **Cold.**

8. *Spell 'climate'.*

9. *What happens to ice in the arctic when the climate warms?* **Melts.**

10. *Name two ways that humans cause the climate to warm.* **Car use, factories, burning fossil fuels**

11. *Which is better for the environment, **biking** or driving?*

12. *What can you do every day to help stop the climate from warming?* **Walk, bike, take public transit**

Activity, Game, Exercise, Debate, Puzzles, Problem Solving, Role Play(Pt. II or Cont...) ~10-30mins

Dramatization:

Ask the class to imagine they are polar bears in the arctic.

1. Ask them how they feel when there are lots of seals to eat. *Do they feel energetic? Would you feel able to take a walk?*

2. Ask the class how they would feel when the ice is melting. **(Maybe scared, worried, ect...)**

3. Ask the class how they would feel when there are few seals to eat.

4. Ask them how they feel about climate warming.

5. Ask them how they feel about car use and factories.

Now, express your feelings as a polar bear would under the scenarios listed above. For example, use polar bear sounds (roars, grunts, ect...), or/and actions (sleeping, slow moving, and drowsy if underfed, ect...) to express your feelings.

Contingency, Plan B, extra game or activity (Back up plan) ~5-10mins

Make a play about the life of a polar bear family in groups of 3-5. Incorporate the practice of hunting, and growing up as a polar bear in a warming climate. Offer polar bear reflections on ice melting, climate change, and human activity that contributes to climate change.

Presentation of Findings ~5-15mins

Why is the ice melting in the arctic?

How is this effecting polar bears?

Review, Conclusion and steps towards continued action ~5-10mins

What are some ways we can help stop climate warming?

References

www.polarbearsinternational.org/polar-bears-in-depth

www.zoocheck.com/programs/wildlife/forgotten/facts.shtml

Derocher AE, Lunn NJ, Stirling I. 2004. Polar bears in a warming climate. *Integrative and Comparative Biology*. 44(2): 163-176.

Great work ecoMentor! After use of Lesson Plan revise, add ideas and repeat!