

Dress Like a Polar Bear



Learning Objectives

Students will be able to:

- List some of the polar bear's adaptations to climate in Canada's northern regions.
- Create a winter outfit for themselves based on their findings about polar bears.



Method

Students research and determine animal adaptation characteristics.



Materials

- Scissors
- Large sheets of craft paper
- Pencils and crayons
- Pictures of polar bears
- Thermometers
- Fur pelt (optional)

Background

The polar bear is a sensible dresser for Canada's northern regions, thanks to its three "coats."

- The first is a layer of oily, water-repellent guard hairs. Though these appear white or creamy yellow in colour, they are actually transparent and hollow. Their colour is the reflection of visible light. These hairs reflect radiant heat from the sun down to the bear's black skin.
- The next coat is a layer of dense under-fur that snuggles against the animal's skin much like long underwear.
- Beneath the black skin, the final coat — a thick layer of insulating fat — keeps the bear's vital core warm.



The polar bear has many other adaptations. Its well-furred ears and tail are relatively small, and so less likely to be frostbitten. Its wide and densely furred feet with their webbed toes are ideal for silently stalking prey, keeping warm, walking in snow and swimming.

In fact, Arctic summers can be too hot for these well-insulated bears! Summer dens have been found where polar bears dig into the permafrost to cool off. It is thought that some of these dens may have been used for hundreds of years.

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Activity

Session #1:

1. Investigate hair and other physical features that help the polar bear to survive.
 - Explain how guard or outer hairs are long, waterproof, coarse and hollow, and how the under-fur is soft, close and dense (like a cotton ball) to trap air for insulation.
 - By sharing pictures or looking at pelts, discuss what parts of the polar bear are covered with hair and how that is useful in Arctic conditions.
 - Also discuss how the bear's wide feet help it to walk on snow and why polar bears need layers of fat.
2. Brainstorm a list of clothing that keeps humans cozy in cold weather. Divide students into groups of four and give each group a body part to dress such as the head, feet, body or hands.
3. Next, trace an outline of a volunteer lying down on the large craft paper and cut out the body outline. Have each group draw and colour their clothing choices on the outline. Discuss the clothing choices.
4. Give groups time to plan what clothes to bring for the following day for an outdoor session.

Session #2:

1. Students should come dressed appropriately for the outdoors based on what they have learned so far.
2. Once outside, have some students stand still for five minutes and ask them to observe how their bodies react. At the same time, have the rest of the class constantly moving around.
3. After the five minutes are up, have students in both groups measure with a thermometer their skin temperature inside their clothes and where it is exposed to air.
4. Back in the classroom, discuss the body reactions for each group. Ask students if they would make any modifications to their clothing choices, and why.

Extensions

- Invite an Elder, a hunter or a museum staff person to demonstrate traditional winter clothing to students.

Evaluation

- Students will demonstrate what they have learned by dressing appropriately for outdoor conditions.
- Describe at least four ways that the polar bear has adapted in order to survive winter.

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