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NANUK NARRATIVES

NANURAQ - SKINS

GRADE:

K - 12

LESSON 1: EXPLORING POLAR BEAR FUR

Each year, Nunatsiavut communities are allocated a specific number of polar bear licenses per community. The fortunate hunters aim to successfully harvest their polar bear. It is a tradition for community members to welcome the hunters back upon their return with their polar bear. This lesson aims to align with hunters who have achieved a successful hunt.

Lesson Activities:

1. Show images and videos of polar bears in their natural habitat, discussing the challenges they face in the Arctic.
2. Provide students with the opportunity to examine a real polar bear skin by reaching out to a successful hunter, explaining its texture, color, thickness, and insulating properties.
3. Encourage students to touch and feel the polar bear skin, noting its warmth, resilience, and protective qualities.
4. Discuss the adaptations of polar bear skin, such as a thick layer of fat beneath the skin, dark pigment for solar absorption, and insulating properties to retain heat in cold temperatures.

More detailed information about some of these adaptations can be found in lesson two (on the following page).

5. Guide students in a class discussion on how polar bear skin helps these animals survive in the Arctic and the importance of understanding animal adaptations.
6. Engage students in a creative activity where they draw or write about what they have learned from examining the polar bear skin and how it relates to polar bear survival in their habitat.



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LESSON 2: POLAR BEAR BLUBBER

Background Information (Source: Polar Bears International)

In the Arctic, temperatures can drop to -40° or -46°C (-50°F) in winter and remain that cold for days or even weeks. However, polar bears are well-equipped for such harsh conditions. From their fur to their skin, paws, and claws, every aspect of a polar bear's body is specially adapted to thrive in the cold, hunt seals for food, and become the kings of the Arctic.

Two Layers of Fur

Polar bears stay very warm in cold weather because they have two layers of fur that trap heat really well. Their fur looks white, but it's actually colorless and has tiny air pockets inside that help keep them warm by reflecting light.

Thick Fat Layer

Aside from the two layers of fur, polar bears also have a thick layer of fat to stay warm. A polar bear's body fat can measure up to 11.4 cm (4.49 in).

When in the water, polar bears depend more on their fat than their fur to stay warm because wet fur isn't a good insulator. This is why mother bears avoid swimming with young cubs in the spring, as the cubs lack enough fat to stay warm.

What is Blubber?

Whales and Arctic mammals like penguins and polar bears rely on a thick layer of fat called blubber beneath their skin. This fat, ranging from a few inches to a foot thick, provides insulation, stores nutrients, and varies among different species. While the Humpback whale migrates to warmer waters and lives off its blubber during the journey, the Narwhal, Beluga, and Bowhead whales stay in colder waters year-round.

Nanuk Blubber Experiment:

Materials

• Large bowl • Ice • Cold water • 4 zip top sandwich bags • Thermometer (optional) • Vegetable shortening • Spatula • Towel

Lesson Activity:

Step 1: Fill a large bowl with ice and cold water.

Step 2: Turn a zip top bag inside out, place the bag on your hand, and use a spatula to cover both sides of the bag in vegetable shortening.



Step 3: Place the shortening coated bag inside another bag and seal.



Step 4: Turn a clean bag inside out, place it inside another clean bag and seal (with no vegetable shortening on it)

Step 5: Place one hand in each bag and place your hands in the ice water.

Step 6: Which hand feels colder quicker? Notice the sensation in your hands, then verify by using a thermometer to measure the temperature inside each bag.



What is a Variable? In science experiments, a variable is any factor that can be changed, controlled, or measured.

To conduct a proper science experiment, you need to examine various variables. Start by setting a control with a plain bag to measure the temperature on your hand. Explore different insulators by testing a range of materials and recording the temperatures within the bags. Maintain consistency by deciding on which variables to keep unchanged, such as testing the temperature inside each bag for the same duration after being covered in ice and using the same amount of ice in each bowl. Encourage students to consider these aspects, guiding them to identify the variables that need to be consistent throughout the experiment.



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