Science of the Season: Polar Bear Blubber

Materials

- A large bowl filled with water and ice cubes
- Plastic baggies
- Crisco shortening
- Duct tape

Instructions

Create Icy Water

- Recreate the icy waters of the Arctic Ocean. Add lots of ice and water to a big bowl.
- Polar bears live in countries that ring around the Arctic Circle: Canada, Russia, the United States (Alaska), Greenland, and Norway.

Test the Waters

- Dip your hand into the bowl - don't linger too long! Pretty chilly, right?
- Now, think about if you had on a big furry coat. Two coats of fur and a thick layer of blubber help insulate the polar bear's body from the cold, keeping its temperature at an even 37° C (98.6° F). The outer layer of fur is made up of long, oily "guard" hairs, which help polar bears get dry as quickly as possible. These hairs are actually transparent, or clear. It's the reflection of the sunlight that makes them appear white!

Make Your Blubber

- Open up one of the baggies and fill it with Crisco - Crisco shortening is essentially a fat that takes solid form in room temperature. It's is used in baking sweets and frying foods.
- Insert another baggie inside the Crisco baggie - move the "fat" around so that the inner baggie is covered.
- Essentially, you should have Crisco layered between two baggies! Slide your hand inside the dry baggie that is inside the Crisco baggie and secure with tape, almost like a little glove or mitten.

Test the Waters - again!

- Now, submerge your hand back into the icy water. Does it feel different with that fat layer of protection?
- The Crisco shortening represents a Polar bear's blubber, or fat layer, found under its skin. Blubber can be up to 4 inches thick. It acts as an insulator to the Polar bear's body - meaning it does not let heat out!
- Blubber, paired with a thick skin and double layers of fur, keep Polar bears warm and stabilized all year long! Although they appear white or yellow in color, their fur is actually clear and hollow, and their skin is black - which soaks up the sun's heat and helps them stay warm.

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