

Y5-K - Animals Preparing for Winter - Blubber Gloves

Learn about polar animals' adaptations with this experiment!

Goals: Ask the questions...

- What is blubber?
- How does blubber keep animals warm?
- What else makes a good insulator?

Background: Wales and Arctic mammals like penguins and polar bears, have a thick layer of fat under their skin called blubber. Blubber can be anywhere from a couple of inches to a foot thick! The blubber keeps them warm and also stores nutrients their body can use when there isn't much food.

What is blubber? Fat! eInsulation slows the transfer of heat, keeping the whale warm in very low temperatures. Fat—even a vegetable-based fat like shortening—insulates animals from cold. So the shortening provides a decent substitute for blubber, the layer of fat that seals, whales, walrus, polar bears, and other marine animals in polar climates have under their skin.

Other materials, such as foam, keep drinks warm because they don't conduct heat, so the heat doesn't escape through the sides and bottom of the cup.

Fun fact! The bucket full of icy water is similar to the temperature and texture of the water around ice floes—where animals like seals and whales tend to live.

Materials: large plastic bags (one-quart bags), shortening (the solid white kind in the can, not the liquid oil), foam packing peanuts or broken up foam cups, cotton balls, feathers, or other natural materials, duct tape, gloves (nitrile - like a doctor uses or rubber for doing dishes), bucket of icy water, spatula, towel, thermometer

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

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



Source: [littlebinsforlittlehands](#)

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

Step #4: Put on your gloves and insert your hands in two plastic bags: one filled with the shortening and the other empty. Zip the bags as closed as possible. *Optional:* Have someone help you tape the bags closed around your wrists.



Source: National Geographic Kids

Step #3: Place your covered hands in the icy water for as long as you can stand.

Discuss: Which hand stays warmer? Which hand gets cold faster? Observe how your hands feel and then use a thermometer to check the actual temp inside each bag.

Step #4: Repeat the experiment with different insulating materials, like the packing peanuts, cotton balls, and feathers.

Discuss: Ask the kids what changes they noticed with each material. Which material keeps your hand the warmest?