

Blubber Glove!

Explore/Explain

Materials (for each team of students):

- four large, re-sealable ("ziploc") clear plastic bags
- one pound of solid vegetable shortening (such as Crisco)
- masking or duct tape
- a bucket of cold water with ice cubes
- watch with a second hand or stop watch
- weights (such as stones)

Procedure

1. Each work team of 2-4 students will need 4 bags and 2-3 cups of solid shortening. Have students take turns covering one hand with a plastic storage bag. Put a generous amount of solid shortening into another bag. Have the student put the plastic-covered hand into the bag with the shortening. Knead the shortening to make sure the hand is completely surrounded by shortening.
2. Wrap masking tape around the portion of the bag covering your wrist to seal the bag. (optional).
3. Cover the other hand with 2 bags without shortening. This is the "control."
4. Place both hands simultaneously into a bucket of ice water. Team members time and record how long each hand remains underwater until the sensation of cold is noted. Whales, Weddell seals, and penguins all have blubber. How is solid shortening like the blubber that these Antarctic animals have? What other advantages does blubber give marine animals besides warmth? (buoyancy, food source, and heat exchange)
5. Remove the bags from the students' hands and seal the inner bags so water won't get in. Drop weights into the outer bag of each double "glove" and put the bags gently back into the bucket of water. How much weight can each bag hold before it sinks to the bottom of the bucket?

Adapted with permission from The Aquarium of Maine web pages:

<http://octopus.gma.org/surfing/antarctica/penguin.html>