



The polar regions are extremely cold, yet many mammals call them home - and it's all down to fat! When you jump into the icy waters of the Arctic or Antarctic, your body heat quickly dissipates. However, if you wear something containing oil or fat, you can slow down this heat loss, just like the thick blubber that whales, penguins and seals have. This layer of fat acts as a natural 'insulator', helping polar animals withstand severe cold.

Materials Needed

Bowl of ice water
Shortening
Zip-lock bags
Spoon
Tape
Thermometer (optional)



Step-by-step tutorial

Step 1

Fill one zip-lock bag halfway with shortening.



Step 2

Take another zip-lock bag and place it inside the bag containing shortening.



Step 3

Use tape to secure the openings of both zip-lock bags together.



Step 4

Place an empty zip-lock bag in the ice water. Put your hand inside the bag to feel the temperature, or measure it with a thermometer.



Step 5

Next, place your 'fat glove' in the ice water and put your hand inside. Compare the temperature with step 4 - which hand feels colder? Then use the thermometer to check the actual temperature inside the bags.



Step 6

The shortening (fat) acts as insulation, helping animals stay warm.



The Science Behind It:

When you put your hand in ice water, heat quickly escapes and you immediately feel cold. But wearing a 'fat glove' means the surrounding layer of fat slows down heat loss, preventing your hand from getting cold so quickly. Like oil, certain materials can slow down heat transfer - these materials are called 'insulators'. Air is also an excellent insulator, which is why woolly jumpers trap lots of air and help keep us warm in winter!