

Blubber Adaptation Experiment

Marine mammals developed blubber to provide insulation against the cold and to provide an energy reserve for periods when food cannot be found in abundance. To prove how blubber works in protecting against the cold try this experiment.

What you'll need:

Ice
Ice bucket or other container
Watch or other time recorder
Vegetable shortening (such as Crisco)
Water
Paper towels

The Exercise:

- 1) Divide students into teams of three. Each student is assigned a task: a) researcher b) technician c) recorder
- 2) The technician fills the bucket with enough water to immerse an index finger.
- 3) Add ice, enough to make the water icy cold. Ice can be added to maintain temperature.
- 4) Have the researcher immerse his/her left index finger in the icy water and have the recorder time how long it takes before the researcher pulls the finger away because of the cold.
- 5) Have the technician wrap the researcher's right index finger with a thick coating of vegetable shortening. Have the researcher immerse his/her right index finger in the icy water and have the recorder time how long it takes before the researcher pulls the finger away because of the cold.

Group discussion:

- 1) Which finger gets cold first?
- 2) How does a whale use blubber to protect itself.
- 3) How do other animals protect themselves from the cold.

Variations:

- 1) Have the students rotate roles.
- 2) Instead of using just a finger, have the researcher place on a surgical glove first, then add a layer of shortening, and put a dishwashing glove over the shortening. Then immerse the whole hand rather than just a finger.