



# Blubber Experiment

Whales stay warm in chilly ocean waters by having a layer of special fat called blubber which acts like a jacket. It traps the whale's body heat inside and keeps the cold out.

For this experiment you will create a plain hand mitt and a "blubber" hand mitt to compare in icy water. Feel the insulating power of blubber yourself!

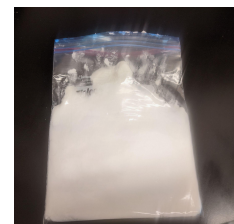
## Materials

- 4 quart sized plastic freezer bags (to make 2 mitts)
- Shortening (or any soft fat, like butter)
- Duct Tape
- 1 large bowl
- Water
- Ice cubes
- Timer



## Directions

1. **Fill** one of the plastic bags about  $\frac{3}{4}$  full with shortening and **squeeze** it gently to spread it evenly in the bag. This fat will act as blubber. Other marine mammals have blubber too, like polar bears and pinnipeds such as seals and seal lions. Blubber doesn't just keep these animals warm, but is an extra energy reserve for times when they are unable to find food.
2. **Insert** the second bag inside the first bag and **tape** the tops together. (For the best seal, insert the second bag inside-out and **zip** the tops of the bags together. Next, fold the top edge around the outside and **tape** it to the outside of the bag.)



3. **Repeat** step 2 (without the shortening) to create a non-blubbered mitt with the last 2 bags. In experiments, it's important that there's only one difference (the *variable*) between the things you are comparing. In this case, we use both a plain mitt (the *control* mitt) and a blubbered mitt (the *experimental* mitt) to see how the blubber affects the experiment.



4. **Fill** the large bowl with water and ice cubes.

5. **Insert** one of your hands into the blubber mitt and the other into the plain mitt then **dip** both in the icy water. Be careful not to let water inside the mitts!



6. **Compare** how your hands feel in each mitt.

- a. What differences do you notice between your hands?
- b. How long can you keep each hand in the ice cold water?  
(Count or use a timer)