

## How Do Whales Stay Warm?

### Materials:

Two quart-sized Ziploc freezer storage bags  
Duct tape  
Shortening  
Spoon,  
Plastic bucket of ice water

### Objective:

Learn about the whale's layer of insulating fat, known as blubber and conduct a simple experiment to test the effectiveness of fat as an insulator.

Whales are warm-blooded mammals that can survive in water temperatures as frigid as the low 40s F. How do they manage to stay warm, even in the ice-cold waters of the Atlantic? By wearing a thick layer of fat, called blubber, just beneath the skin. How does the whale acquire this fat layer? Food! An adult right whale, for example, may eat 2,000 lbs of food each day. In this experiment, you will find out how a whale's blubber keeps them warm.

### Procedure

1. Place six to eight large spoonfuls of shortening into one of the quart-sized bags. Try not to get any on the top edge of the bag.
2. Turn the other quart-sized bag inside out. Push this bag into the bag that has the shortening. There should be shortening all around the bag you just pushed inside.
3. Seal the zip tops of both bags together. Cut strips of duct tape and use this to completely seal the top of the blubber glove
4. Place your blubber glove on one of your hands. Place an empty bag on the other hand, and place both hands in the ice water. How long can you withstand the cold?
5. How much of a time difference was there between your insulated hand and non-insulated hand? Record your time and compare!

Based on a lesson in the *Face-ing Extension Curriculum Guide*, a partnership of the New Bedford Whaling Museum, Audubon Society of RI , and Whale and Dolphin Conservation, 2012 and 2016.