

1. *Blubber Glove Experiment*

You will need:

- Bowl full of ice
- Two small plastic bags
- A pack of lard (Crisco)
- Duct Tape

1. Put the lard into one of the plastic bags.
2. Place your hand into the other plastic bag.
3. Place your hand, which should be inside one of the plastic bags, into the bag of lard.
4. Remove your hand and duct tape the lining at the top of the bags to seal the bags so the lard cannot come out.
5. Move your hand around inside the bag so that your hand is in the middle of the lard.
6. Now, place both hands into the ice water, one hand with the blubber bag and one without. Don't let water get into the bag!

1. Ask a *QUESTION*:

Will my hand be cold in the blubber bag?

2. My *HYPOTHESIS* (prediction to the question above):

3. My *DATA* – a picture of the experiment:

4. The *RESULTS*:

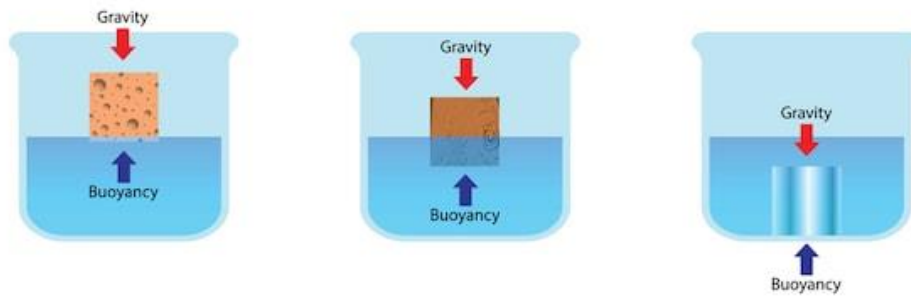
5. My *CONCLUSION*:

Blubber keeps marine mammals _____ even though they live in cold places.

2. Now we are going to test the buoyancy of a few of your household items compared to your blubber glove!

Buoyancy is the ability to float in a liquid. A beach ball is very buoyant, where a marble is not buoyant at all. It is because the ball of air is less dense than the water.

Buoyancy Force



a) Find three items around your house that will fit inside the water container you used in the blubber glove experiment. Test each item by dropping them in the water to see whether they float or not. Fill in the data box below:

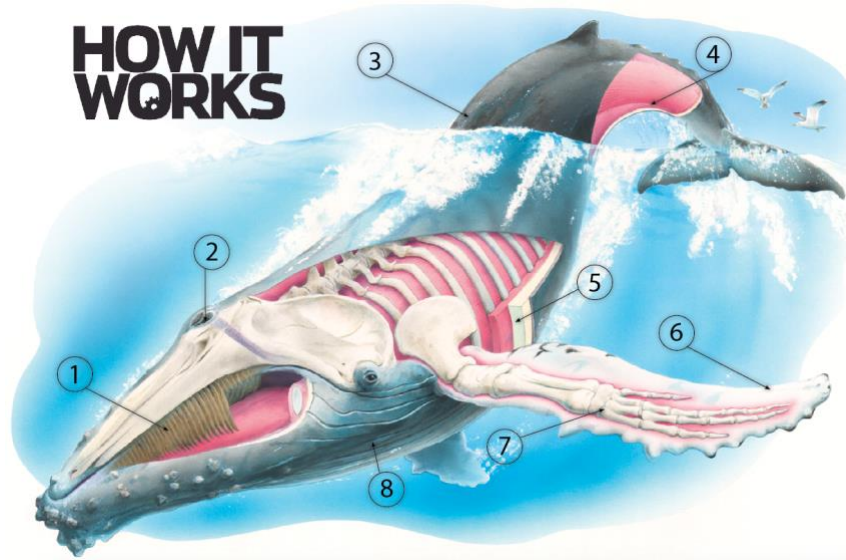
<i>Testing Item</i>	<i>Float, Hover, Sink</i>	<i>Is it Buoyant? (Y/N)</i>
1. Blubber Glove		
2.		
3.		
4.		

*If an item does not completely sink to the bottom, it has some buoyancy, just not enough to sit on top of the water.

b) Based on what you just learned about buoyancy, why do you think it is important for marine mammals to have blubber?

3. All whales have blubber. It is one of their many adaptations that help them survive in water. We are going to dive a little deeper into the adaptations of whales!

Humpback Anatomy: What adaptations help these marine mammals survive? Match the numbers on the whale to the letters of adaptations below.



- a) **Finger Bones**- Whales are mammals and still carry some terrestrial anatomical features from their land-living ancestors, such as finger bones.
- b) **Blubber**- A thick layer of fat that stores energy, increases buoyancy and helps keep the whale's body warm. Unlike the fat on other mammals, blubber is vascularized, meaning blood can circulate through it.
- c) **Expandable Throat**- The grooves around baleen whales' throats are folds of skin that can expand to increase the amount of food the whale can gather during filter feeding.
- d) **Blowholes**- Baleen whales have TWO blowholes, while toothed whales only have one. Blowholes are equivalent to our nostrils and are protected by a muscular flap that forms a watertight seal.
- e) **Strong Tail Muscles**- Powerful muscles enable humpbacks to accelerate to their top speed in just three or four pumps of their flukes (tail).
- f) **Baleen**- Humpbacks have hundreds of baleen plates in their upper jaws, enabling them to filter out tiny fish and plankton from the seawater.
- g) **Long Flippers**- A humpback's elongated pectoral fins are the longest of any whale relative to body size. They can be up to one-third as long as its snout-to-tail length.
- h) **Breaching**- Humpbacks can leap out of the water as high as their own body length. They are very acrobatic compared to other baleen whale species, performing various leaps, slaps and charges.

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