Blubber, or how do they stay warm in such cold water ?

Orca Scientists,

Killer whales next to man, are the most widely distributed mammals on the planet. They are found in all the oceans of the world but are most commomly found in the cooler waters both north and south of the 50th parallel. Through time their bodies have adapted to life in these cold waters. In fact whales have become very well adapted to both keeping their vital body heat as well as shedding it. One way that they retain the heat is through their blubber, a fatty substance that acts as a form of insulation, or a warm coat, against the frigid waters. Our job as scientists is to examine how this blubber works as insulation and to experience how effective it really is.

Supplies:
Ziploc storage bags
Duct Tape
Shortening
Miscellaneous "fillers" like cotton balls, shredded paper, etc...
Bucket of ice cold water

Preparation:
Place a cup full of shortening into one of the ziploc bags.
Then take another ziploc bag, turn it inside out and insert it into the one with the shortening.

Zip the edges of the two bags together so that the shortening is encased between the 2 bags. You now have a blubber glove!

You can duct tape the seams together to make sure the blubber stays in the glove.

Using the same technique as above make additional gloves that have different fillers.

Hands on:
Taking turns, have students alternate sticking their bare hands in the water.
Make sure to record their reactions, writing down how it feels, how long can they hold their hand in the water, etc...

Then have the students repeat the experiment except this time use the filler gloves.
Again record their reaction, endurance etc.
Make clear recordings of your findings.
Analyze your results and compare them to your previous findings.

Now utilize the blubber glove. Record your results and compare!