**Many animals live their lives in extreme weather conditions. Blue whales, for example, migrate between warm breeding waters and cold feeding waters near Antarctica and in the Arctic. How do whales and other animals stay warm in very cold water and climates? Find out with this easy science demonstration that uses only common household items.**

**What You Need:**

* **Container of ice water**
* **Shortening (like Crisco) or petroleum jelly (like Vaseline)**
* **4 Ziploc storage bags**
* [**Timer**](https://www.homesciencetools.com/product/stop-watch-digital-2-case)
* [**Thermometer**](https://www.homesciencetools.com/product/thermometer-fahrenheit-celsius-12-inches)
* **Hand towel**

**What You Do:**

**1.  Turn one of the Ziploc bags inside out and place it inside another bag. Make sure you have the “zippers” lined up correctly so you can zip the two bags together.**

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**2.  Fill the space in between the two bags with a thick layer of shortening or Vaseline, then zip the edges together. We used Crisco. Zipping the bags together makes a type of glove with an opening for your hand. This is the test glove.**

**3.  Make a “control” glove by putting the other two Ziploc bags inside each other. This will you give you the same amount of plastic, but with no extra substance shielding your hand from the cold water.**

**4.  Fill a large container with ice water. Make sure it’s deep enough to submerge your hand. We used a glass mixing bowl.**

**5.  Put your hand in the control glove and stick it in the ice water. Using the stopwatch timer, see how long you can keep it in there before it gets too cold. Record your results in your science notebook. Use the hand towel to dry off the outside of the control glove, if necessary.**

**6.  Now put the same hand in the test glove and submerge it in the water. Once again, use the stopwatch timer to time how long you can keep it in the ice water. Record your results. Were you able to keep your hand in the ice water longer using the control glove or the test glove? What was the time difference?**

**7.  Now, put a thermometer in the control glove and put the end in the water. Record the temperature.**

**8.  Repeat step 7 with the test glove. What is the difference between the two temperatures?**

**Although whales migrate between warmer and cooler waters, other animals, like seals, sea lions, penguins and polar bears, spend their entire lives in bitterly cold temperatures. These animals have a thick layer of fat under their skin called *blubber.* The blubber keeps them warm and also stores nutrients their body can use when they are in environments where there isn’t much food.**

**The fat molecules in Vaseline and shortening make them act a little like blubber. Blubber helps keep animals warm because it acts as an *insulator.* An insulator slows down the transfer of heat, keeping the animal’s body heat from escaping into the water and protecting it from the cold. Can you think of any insulators you’ve used at home? *Hint*: When you go outside to play on a snowy day, you probably wear some!**

**For further study, repeat the blubber glove project using different materials as insulators. Try using packing peanuts, rubber bands, cotton balls, wool, sand, and feathers. Predict which substances you think will insulate well and why.**

[**Learn about polar animals!**](https://learning-center.homesciencetools.com/article/learn-about-polar-animals/)