



GET READY TO DIVE IN WITH US AS WE EXPLORE LIFE UNDERWATER!

Water covers most of the Earth's surface. From oceans to rivers, to lakes and swamps, aquatic environments are diverse and so are the organisms that live within them. Whether it be the icy ocean water of the Arctic, a shallow pond in the forest or a fast-moving river, these areas all provide unique spaces for plants and animals to live. Some organisms make their homes on the seafloor, some float near the surface and others move and swim at different depths. In order to learn about how things live under water, people have invented different tools to help study them including underwater submersibles, scuba gear, sonar and waterproof cameras.

WEEK 7: UNDERWATER ADVENTURES

DAY 5: COLD WATER ADAPTATION: BLUBBER

When we are cold, we put on sweaters or jackets to stay warm. But how do some animals who live in icy cold water stay warm? Marine mammals, like whales, seals and walruses, have "blubber" that helps them to survive. Blubber is a special layer of fat under the skin that stores energy, helps them float in the water and provides insulation. This insulation keeps their bodies warm, no matter what the temperature is outside their bodies. Without blubber, seals wouldn't be able to hunt fish in the deep ocean and whales would not be able to migrate between warm and cold waters.

Before you start, you should have:

- A bowl
- Cold or room-temperature water
- Ice cubes
- Two sandwich-sized plastic baggies
- ½ cup vegetable shortening (butter, peanut butter or spreadable coconut oil will work as well)
- Paper towel or dishcloth
- Optional: tape



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Get started:

1. Fill the bowl with water and ice cubes. Let sit for five minutes.
2. Put one finger into ice water and count to ten or until it is too cold. Take your finger out of the water.
 - What did the water feel like?
 - How did it make your finger feel?
3. Dry your finger with the paper towel and place it in the plastic baggie. Optional: Use tape to seal the bag around your finger at the top.
4. Cover the outside of the bag around your finger with vegetable shortening in a thick, even layer.
5. Put your shortening-covered finger in the second plastic baggie. Optional: Use tape to seal the bag around your finger at the top. Ask a partner if you need help.
6. Put your finger back into ice water and count to ten. Remove your finger from the water.
 - What did the water feel like?
 - Does your finger feel differently than before?
7. Pull your finger from the baggies and clean up the experiment.
8. Tell someone what you discovered!
 - What did the ice water feel like on your bare skin?
 - How did covering your finger with the shortening change how the water felt?
 - Why do you think the shortening helped keep your finger warm in the cold water?
 - How do animals use blubber to live in cold temperatures?

Keep exploring!

- Try using something other than shortening to form your insulation. You could try lotion, flour or even playdough. What worked best?

What did you find?

Upload a photo or video and tag the Sam Noble Museum on Instagram or Facebook. You can also use the hashtags **#samnoblehome** and **#summerexplorers** to share!

More information on how animals survive in cold water:

https://www.youtube.com/watch?v=TwfKcX_8fbA



<https://www.nationalgeographic.org/encyclopedia/blubber/>



Join Sam Noble Museum educators as they try out this experiment!

<https://youtu.be/NVdEyri5vU>



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