Arctic Animals

Investigate how arctic animals keep themselves warm while living in cold climates.
(NGSS Disciplinary Core Ideas LS4 Biological Evolution: Unity and Diversity)

Pre-Activity Questions

- How do animals that live in cool climates, like the arctic, keep warm?
- Do all animals have this special adaptation or ability to survive in the cold?
- How many arctic animals can you name?

Activity

- One adaptation that some arctic animals have to keep warm is a thick layer of blubber, which is fat. How does this work? We can investigate using shortening, a fat that insulates against the cold. It is a thermoregulator, which means it keeps the warmth in and the cold out. Even in super cold weather, the fat maintains its temperature. Fat doesn't require a lot of blood supply so blood stays closer to the skin's surface, the surface closest to the cold temperatures.

Let's investigate!

Materials

- Spoon
- Shortening (the animal fat)
- Two plastic sandwich bags (the animal skin)
- Two ice cubes/crushed ice (the cold)

Steps

1. Scoop out a tablespoon of **shortening.**
2. Put the shortening in one palm of participants hand.
3. Place hands – one with shortening and one without shortening – in the sandwich **bags.**
4. Place **ice** on the outside of each bag.
5. Have participants hug the ice cube with their hand.

Post-Activity Questions and Activities

- What do you observe?
- Why does the shortening or fat keep the cold out?
- Try using different substances like butter, cheese, yogurt, fabric, foil, cotton, etc. Make a chart or graph of the observations.
- Use this hands-on sensory experience as a starting point to write and illustrate a story about how arctic animals are able to keep warm in the cold.
- Play and feel the shortening. Spread it on your hands. Run your hands underwater. What do you observe?
- What are some of the ways that you keep warm in the cold? How are they similar or different to how animals that live in the arctic?