Blubber Glove Experiment

Materials

Blubber Glove:
- *Quart Freezer bag x2*
- *Crisco/Vegetable Shortening (1lb)*
- *Tape (Sturdy, like gaffers tape)*

For Cold Dip/Activity:
- Large mixing bowl
- Ice
- Water

Set up:

Assemble a "blubber glove"

1. Add crisco into one of the quart-sized zip-top freezer bags (fold the top back to avoid getting it in the zipper)
2. Flip the second freezer bag inside-out, and press into the bag with crisco inside, smushing crisco around to evenly distribute.
3. Zip two freezer bag tops together, and seal with gaffers tape all across the top of the glove, over the zipper

Description:

Students will explore the insulating capacity of blubber, seeing how effective it is at insulating mammals living in cold water.
You can do this experiment with just a few household items!

Vocabulary:

Blubber: special fat that marine mammals use to stay warm in cold water.
Marine mammals: warm-blooded animals that live in the ocean.

Duration: 15 minutes

Activity:

Seals are one of polar bears favorite foods, and they have a thick layer of special fat called **blubber** to keep them warm in the cold arctic water. This special fat is filled with blood vessels and is structured differently than the fat of other animals. It does a great job of retaining body heat, allowing seals and other **marine mammals** to thrive in cold water without losing that heat energy. Just HOW impressive is blubber at insulating a seal? Let's experiment.

1. Fill the mixing bowl halfway with ice, then ⅔ or so full with water (not so much that it will overflow if you stick your blubber glove in)

2. Have a child place hand in the blubber glove, squish it around so it really encapsulates your hand.
3. First, put your hand WITHOUT the glove in the bowl of water.
4. Next, put your hand WITH the blubber glove in the water. How does it feel?

Additional info:
This thick blubber layer makes seals one of a polar bear's favorite foods! It is rich in calories to provide them all the energy they need to make it through the ice-free season.

Background: Do polar bears have blubber, too?

- Polar Bears actually do not have specialized fat like seals, they have a more inert fat layer, like ours.
- They DO have an impressive fat layer, especially after a season of successfully hunting seals, but that fat layer is mostly used for energy storage, not for insulation.
- A main reason why Polar bears don't need blubber like seals do, is that they don't spend nearly as much time in the water.
- Polar bears spend most of their time on land, and their dense coat of fur is a better insulator on land than fat is.

Additional Resources:

All About Polar Bears slide deck: https://downloads.ctfassets.net/i04syw39vv9p/3P7RDfDB3CXhLz51578VbQ/dca3b0a29530626cdd0623b4d28b4d8f/AllAboutPolarBears_4-8.pptx

Polar Bears and Fat: https://www.youtube.com/watch?v=_xn_jXMb8yA