Brevard County Libraries

We are shaking things up a bit with our Summer Reading Program 2021!

In this week's STEAM Packet, our theme is the Arctic! We're diving deep to see just what allows these frosty critters the ability to survive in freezing, unhospitable habitats. We will be looking directly at a fat layer they carry called BLUBBER!

STEAM Packets can be picked-up at any branch within Brevard County and are available for curbside service.

All STEAM Packets are developed to be take-home based projects. Most supplies will not be provided by the library and will be listed only as 'Supplies Needed.'

Brevard COUNTY Libraries

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Storytime, STEAM, Craft, and Teen Packets developed by the Youth Services Department

The Arctic Region

The Arctic Region

Imagine a cold, windy place where at times the sun hardly shines and at other times of year it barely sets. It is a place with frozen ground, making it very difficult for trees to grow. Instead of walking through the forest, in the Arctic tundra, you walk *on* the forest, as plants may only grow a few inches to one foot tall.

The Arctic Region is the area within the Arctic Circle, including the icy North Pole and the Arctic Ocean. One interesting feature is its many glaciers, rivers of ice formed from snow falling over thousands, even millions, of years. Glaciers spread and move with freezing and thawing temperatures and by the force of their own weight and gravity. Glaciers form on land, near lakes, and along the coast. When the tip of a glacier reaches the edge of the sea, it breaks off and forms an iceberg in a process called calving.

The Arctic region also includes the tundra—meaning “treeless plain”— ecosystem. One defining characteristic of the arctic tundra is its permafrost, permanently frozen ground that occurs from several inches below the surface to depths of more than 1000 feet. Permafrost, combined with a long season of cold and high winds, are the primary reasons for a nearly treeless zone in the arctic.

Blubber

Beneath the skin of a polar bear or other arctic animals is stored fat, called blubber! This fat helps these creatures stay warm and can also help give them energy if needed.

Suggested Reads: Books available through your library!

"In arctic waters" by Laura Crawford
"Ice bear: in the steps of the Polar Bear" by Nicola Davies
"First book about animals of the polar regions" by Gareth Stevens Publishing
"A polar bear journey" by Debbie S Miller
"Sea bear" by Lindsay Moore
“24 Hours on the Tundra” by Virginia Schomp
“Tundra Biomes Around the World” by Phillip Simpson
"Arctic & Antarctic" by Barbara Taylor

Blubber Experiment

Supplies Needed:

Plastic bags (Quart size), shortening (solid white kind in the can; Crisco. Oil will not work.), tape, (2) containers of water, and ice.

Optional Supplies:

Foam packing peanuts, broken up foam cups, cotton balls, feathers, or other natural materials.

Predictions:

What do polar bears, whales, seals, and penguins all have to keep them warm in the cold?

What do you think will happen?

What hand do you think will be warmer?

What do we do as humans in order to keep warm like the polar bears?

Directions:

This activity is intended for you to do at home with your family.

1. Fill your containers with ice and water.
2. First, put one hand in an empty plastic bag and then into the cold water. See how long you can keep it there before the cold becomes unbearable. Record your time on the next page.
3. Next, fill one of the plastic bags two-thirds full with shortening. Put one of your hands in another, empty bag and then push it into the fat filled-bag. Presto! You now have a blubber glove.
4. Roll the ends of the bags together and seal with tape to stop any fat from escaping!
5. Put your blubber glove in the freezing cold water and compare times as before.

Time Record: write down how long you can keep your hands in the icy water!

With Blubber: _____

With NO blubber: _____

Reflection:

Circle your answer to the first two questions. Write your response down for the rest.

With blubber my hands were: ◯ **HOT** ◯ **COLD**

With NO blubber my hands were: ◯ **HOT** ◯ **COLD**

How many Arctic animals (living on land and in water) can you think of that use blubber to survive in this cold environment?

What other adaptations do Arctic animals use to stay warm?

Can you think of characteristics that Arctic animals share to insulate (keep warm) themselves against the cold?

What are the similarities and differences in which humans and other animals stay warm in the Arctic?

Why is it necessary for plants and animals to adapt to an environment?