



Friends of NCTC Program Activity  
c. 2021 Friends of National Conservation Training Center

## Animals In Winter

(ages 5 and older)

### These activities have a connection to the National Conservation Training Center!

At NCTC, there is a Polar Bear Skin that was shot by Matthew Henson. Henson was an African-American explorer who went with Robert Peary on seven trips to the Arctic, including the one that claimed to have located the geographic North Pole. Henson was born in Maryland in 1866 and died in 1955. He is buried at Arlington Cemetery. The skin is on display in the Archives.



### Background

During colder weather, animals use several strategies to survive. Among these strategies are:

**Adaptation**-to change habits for survival. snowshoe hare, deer (thicker hair),

**Hibernation**-the slowing of activity during the winter, causing changed body conditions like reduced breathing and eating, and lowered body temperatures. Examples: bears, frogs, turtles, skunks, and bats.

**Migration**-to travel to a different area for over-wintering or breeding. Many birds travel south to warmer climates during winter, but return to cooler climates for breeding. Monarch butterflies migrate to Mexico. Examples: oriole, orca, butterfly, and many birds

**Burrowing**-underground den or tree bark or leaf cover where animals or insects go to protect themselves against cold temperatures.

**Remaining Active**-continue to live as in the other seasons, searching for food, etc. Examples: squirrel, cardinal, fish, owls, and foxes

**Freeze**-The wood frog (and some other animals) actually freeze in winter and thaw out in the spring. Special sugars in their blood keep their cells from being destroyed—sort of like antifreeze. If our skin or blood freezes (or dogs, cats, rabbits, etc), we die. Wood Frogs can be called “the frog with the robber’s mask.”

### What You Will Need for This Project

Zip-loc baggies (quart size works well)

Dog fur (optional)

Fiberfill, felt, cotton balls, fleece (optional)

Shortening

Ice cubes

3 cups baking soda

½ cup hair conditioner (2 cups/1 small box to 1/3 cup conditioner)

2 boxes corn starch/baking soda + 1 can shaving cream

Large bowls for mixing

<http://www.snowcrystals.com/photos/photos.html>

<https://www.smithsonianmag.com/innovation/these-are-highest-resolution-photos-ever-taken-snowflakes-180976710/>

### What to Do

Animals have to stay warm in the winter whether they are active, hibernating, or dormant. People have followed examples set by animals for ages. For instance, the design of our winter parka imitates the ways that various animals stay warm. You may have a coat for winter that is constructed with natural down or synthetic insulation, faux fur on the collar, fleece lined pockets or something similar.

**Try getting warm.** One way to stay warm for people or animals is to stay close together. Stand close together with a friend or two for 1 minute, then stand apart for 1 minute. Which way were you warmer?

Another way is to burrow under a blanket or quilt. Cover yourself with a blanket (put it over your head) and begin to count slowly to 60. What number do you reach when you begin to feel warm? What number do you reach when you are too hot to stay under the blanket anymore?

**How do animals get warm?** Animals that live in cold areas (especially the arctic) have ways to keep warm. Animals like dogs, cats, sheep, have thick fur/hair/wool coats which keep them warm. Animals like horses may grow heavier coats in colder weather. Birds will fluff their feathers out so that air gets trapped between them. That keeps them warmer. Some animals, like the beaver, have special fur that helps them stay warm. The beaver has to stay warm in icy water and in the cold air, so it grows double layers of thick fur. The fluffy, soft, inner coat traps warm air and keeps it close to the beaver. The long, outer guard hairs are waterproof, so the beaver stays warmer and dry even when there's ice in the water. Some dogs have a double coat, too.

**Are you a Polar Bear?** Polar bears have 2 types of very thick fur and a layer of body fat. The outer hairs are hollow and look like little tubes of glass. (They aren't white!) They help bring warm air close to the skin. The inner hairs trap the heat even closer to the skin. Polar bears also have a thick layer of fat, but it is not the same thickness on all parts of the body. Polar bears also burrow in the snow because snow can help insulate them from cold air, especially wind. (Snow crystals, even though cold, can help trap small amounts of air that create insulation.)

**How well does dog hair work?** You can experiment with insulation and compare how well they keep your hand warm. If you have a dog, give them a good brushing and collect the fur. Put the fur in a Zip-Loc bag and seal it up after pressing out as much air as you can. (If you don't have a dog, ask a friend who does or use fiberfill.) Put the bag on the palm of your hand, then place an ice cube/ice bag on top. Does your hand stay warm? Place an ice cube in your other (unprotected) hand. Wait 10-30 seconds and decide which hand is colder. How well did the fur insulate your hand?

You can try this experiment again using fiberfill or felt (found in craft stores), cotton balls (found at grocery and drug stores), or fleece (found at craft or fabric stores).

**Maybe you are a walrus?** Whales, walrus, and seals don't have thick fur, but they depend on a thick layer of body fat called blubber to keep them warm. The blubber on a large whale can be up to 24 inches thick. It is almost impossible for the cold to get through the blubber and chill the whale. You can make a walrus mitten and find out how well blubber works.

**To Make a Walrus Mitten,** you will need two Zip-loc bags. Turn one Zip-loc bag inside out.

Put 1 c. shortening in the other Zip-loc bag. Put the inside-out Zip-loc bag inside this bag so that the "loc strips" can be attached to each other. This will form a type of mitten that will avoid getting shortening all over your hands. Put your hand in the empty plastic baggie which will extend your hand into the shortening bag "mitten". Squeeze until the hand is surrounded with shortening. Put other hand in another, plain plastic baggie. Put both hands in a pan of ice water (or hold an ice cube in both hands.) Which hand gets colder first?

How well do you think the Walrus Mitt worked? (The blubber in the one mitt helps protect the hand which is how whales stay warm. Fat is a good insulator!) [www.neaq.org](http://www.neaq.org)

**How would you keep an animal warm!** Just for fun, think about this question:

"If I were any animal in the wintertime, I would be \_\_\_\_\_ because...."

BUT WAIT! If you could change the insulation on any animal, what would you change? Would fish have fur? Would turtles wear turtlenecks? What kind of covering would you like to have? Once you have decided, ask your friends and family, too.

### **Are you waiting for snow? Make a snowflake!**

Even though it can snow in many places in the winter, it doesn't snow all the time. We don't know if animals like snow, but many people enjoy it, at least for a little while. If you are impatient waiting for it to snow or if you live somewhere it doesn't snow, you can make some snowflakes!

To make a snowflake, fold a coffee filter in half, then keep folding it (about 4 times) until it is small, but not too thick. Using good scissors, cut in places along the edges. Unfold it carefully and you will discover a snowflake!

It is said that no two snowflakes are the same and they are most likely not, although many have similar shapes. If you would like to see some spectacular snowflake pictures, try one of these websites:

<http://www.snowcrystals.com/photos/photos.html>

<https://www.smithsonianmag.com/innovation/these-are-highest-resolution-photos-ever-taken-snowflakes-180976710/>

### **Make Some Snow!**

3 cups baking soda + ½ cup hair conditioner (2 cups or 1 small box to 1/3 cup conditioner also works well)  
Mix in a large bowl and have fun with it! You can store the mixture in Zip-loc bags for later.

(You can also use 2 boxes corn starch or baking soda + 1 can shaving cream, but avoid putting your hands in the eyes as shaving cream stings!)

### **Helpful Hints for Adults**

“How The Turtle Flew South For The Winter” in *Keepers of the Earth*, Joseph Bruchac and Michael J. Caduto, (page 157)

*One day while Turtle was walking, he noticed some birds flying overhead. He yelled to them, "Where are you going?" Two birds flew down and answered, "We're flying south for the winter." "What is in the south?" Turtle asked. "Don't you know anything?" the birds said. "In the south there is a lot of food and it is nice and warm." "That sounds wonderful," Turtle said. "May I go with you?" "No way. You can't fly," replied the birds. Turtle kept pestering them until they finally agreed. "But, if you come with us," they told Turtle, "you must hang on to a stick and not let go until we get there." "That won't be a problem," Turtle said. "Once I bite something, I won't let go until I want to." So the two birds grasped each end of a stick with their feet. Turtle bit tightly onto the middle of the stick and hung on. At first Turtle enjoyed his ride, but then he began to feel anxious. He wanted to know how far they had traveled, so he tried to get the birds attention by mumbling, but the birds pretended not to hear Turtle. Soon they were really high and Turtle was getting worried. He worried about whether the birds knew where they were going and when they would get there. He wiggled his legs to get the birds' attention, but they ignored him. Unfortunately, Turtle's curiosity got the best of him, and he opened his mouth to ask, "Are we there yet?" But the birds didn't hear his question for he was falling quickly to the earth. As he fell, he tucked himself into his shell. When Turtle hit the ground, he got up unhurt and buried himself in the mud. That is why Turtle goes underground during the cold winter months.*

*Do Beavers Need Blankets* (Stan Tekiela)

*The Longest Night* (Marion Dane Bauer)

*Snow* (Rylant),

*Snow* (Shulevitz)

*No Two Alike* (Baker)

*Over and Under the Snow* (Messner and Neal)

*Snowballs* (Ehlert)