

Welcome/ Staff/Volunteer Names

Introduction: **Today's Topic-Winter Wonders**

Question: Can snow help animals survive the winter?

Ice Breaker/ Game: **Gently Falling Snowflakes**-A trust game based on "Pass the Person".

Background/ Exploration: **Why Winter?** Demonstration of how the abundance, then lack, of solar energy causes a change in seasons.

Activity: **Ice & snow experiments**-Repeatedly observe the crushed and uncrushed ice cubes. Which one melts first? How much water makes an ice cube? Observe how much water it took to make a cup full of snow.

Winter challenges-Ask the students how winter makes it hard for plants. Water is frozen at below zero temperatures-plants can't use it (like a desert). Deciduous trees & shrubs conserve moisture by losing their leaves and going dormant. Evergreen trees & shrubs have small, wax-coated, or needle-like leaves. Plants can get damaged with too much freezing and thawing.

Ask students how winter makes it harder for animals.
Cold-blooded animals (frogs, turtles) hibernate underground (under the frost line).
Insects go dormant in protected places like dead leaves, bark, & tree hollows.
Birds can fluff their feathers to stay warmer when they rest.
Warm-blooded animals grow thicker winter coats & eat more to build up a fat layer.
Some warm-blooded animals hibernate or go dormant, others stay active.
It is hard for animals to find food in the winter, especially if there is snow.

Activity: **Insulating with fat**-Students coat one index finger with petroleum jelly and put the index fingers of both hands into a dish of cold water. Discuss.

Trail Talk: Trail Rules. **What we will look for**-Animals and their signs (in the snow).
Predictions-What animals will we find?

OUTDOOR

EXPLORATION: Kinds of snow-Name and find different kinds of snow. (fluffy, sleety, powdery).

Activity: Snowflake observation
Snow is made of small ice crystals formed into patterns. No two snowflakes are alike.

Animal & signs hike: Follow the track trails of a couple different animals. Look for rodent tunnels in the snow or dead grass. Look for twigs clipped by rabbits. Share with the students how having snow cover is an advantage in winter: Deep snow is good because it keeps dormant plants at a constant temperature.

Activity: Track stories-Students guess what motion a set of tracks made by the other group represents.

Spend some time watching active animals like squirrels and birds. What are they doing?

Game: Wolves in the Snow Students follow by stepping in each other's tracks.

Closing: We can help birds survive the challenges of winter by feeding them.
Discuss what kinds of seeds and food are good for our feathered friends.

Send Off: Goodbye!
Next Month-Maple Syrup Time

Take Home: Parent Outline
Snow related activities

Vocabulary

Deciduous, evergreen, hibernate, dormant, insulation, hexagonal, solar energy, evaporation

Background and Activity References

Caduto, M. J., and J. Bruchac. 1989. *Keepers of the Earth: Native American Stories and Environmental Activities for Children*. Fulcrum, Inc. Golden, CO. Pp. 129-132 the reason for seasons
Ranger Rick's Naturescope: Birds, Birds, Birds! 1992. National Wildlife Federation, Washington, D.C.
Centerfold has feeder diagrams

Winter Wonders at home:

Make paper snowflakes. Make each one different.

Encourage your student to design and make containers to insulate an ice cube.
How long will it keep the ice from melting?
Compare by setting an uncovered ice cube in a bowl nearby. Record the melting times.
(No fair putting your ice cube outside or in the freezer!)

Feed our winter birds to help them survive the winter.

Make up some colored water in spray bottles for students to paint the snow with.
They could leave trails of "tracks" for others to follow.