



**Native Expeditions in partnership with the
Ozark St. Francis National Forest**
National Wild and Scenic Rivers of Northwest Arkansas

Winter Activities

How Plants and Animals Prepare for Winter

As the temperature outside begins to drop, noticeable changes take place all around us. Squirrels get busy gathering nuts, leaves change color and begin to drop, and the birds start their journey south. As winter gets closer, we start seeing fewer and fewer animals. The ones that do stick around during the cold months may behave or look differently than before.

Both plants and animals are programmed to face cold weather in several different ways. All living things, including humans, must adapt to their environment in order to survive. Let's take a closer look at how plants and animals prepare for winter.

Stocking up on supplies

While it is still warm, some animals begin stocking up for winter. Squirrels are busy collecting nuts and hiding them throughout the forest. Months later, these snacks will provide the necessary energy when food is scarce. Other animals, such as mice and beavers, store food in their homes. Honeybees use their supplies of honey collected during warmer months. Most mammals try to eat as much as they can before winter arrives to ensure that they will have extra fat for the winter months. Not only does this keep them warm by providing an extra layer of insulation, but it also keeps them from getting too hungry.

Changing their appearance

Stocking up piles of food is not the only way animals prepare for colder months. Some animals change their appearance to adapt to the weather. Just like we put on winter jackets, some animals' fur grows thicker and heavier. Other animals' fur changes color to blend in with their surroundings. Arctic foxes change their fur color from darker colors in the summer to almost completely white in the winter. White-tailed deer become darker brown in color to blend in with the dead plants and leafless trees.

Slowing down and hibernating

During long winter nights, perhaps you like to enjoy some extra time to snuggle under the covers. Animals like bears, skunks, and squirrels also like to stay tucked in during the winter. Many animals hibernate during winter months. Some animals only wake up to look for food or enjoy the occasional warm, winter day. Other animals, like snakes, bats, and groundhogs, go into a much deeper hibernation. During that time, their bodies slow down for months, not waking up until spring. Hibernation allows animals to save their energy, making it unnecessary to look for food when it is scarce. True hibernators sleep so deeply that they may appear dead. A hibernating woodchuck's heart rate slows from 80 to 4 beats per minute and its temperature drops from 98°F to 38°F.

Migrating south

Another strategy for surviving cold winter months is to head south. Many animals avoid dealing with the challenges of food scarcity by heading to warmer places, where food is more available. Geese are among the most common migratory animals, but many other birds fly south also. Other land animals like caribou and some species of deer also move south for the winter. Whales and several types of fish swim long distances to search for warmer weather. Monarch butterflies are famous for their migration to Mexico each fall. Even earthworms migrate, although it is only as far as six feet below the earth's surface.

Animals other than mammals and birds also change their behavior in the winter. Fish, frog, snakes and turtles adapt to colder weather by becoming dormant. Frogs and turtles hide under rocks, logs or fallen leaves. Some even bury themselves in the mud. Since cold water holds more oxygen than warmer water, frogs and turtles are able to breathe with the oxygen dissolved in the water.

How plants adapt for cooler temperatures

Animals are not the only living things preparing for winter each year. All summer, plants are busy growing, making and storing food. Unlike animals, plants do not have the option of migrating or hibernating. Plants must adapt to the conditions around them. Trees have an amazing ability to sense changes in weather. They begin to prepare themselves as soon as they recognize the signals that winter is coming. Deciduous trees prepare for dormancy, which is like animal hibernation, by slowing their growth and dropping their leaves. Trees also protect their cells from freezing temperatures by

moving water from inside the cell to tiny spaces outside of the cells, which prevents the cells from freezing.

One of the most difficult aspects of winter for plants is that water may be frozen at times, and plants cannot take ice up through their roots. Deciduous plants overcome this lack of water by dropping their leaves each fall. Leaves are the location in which water evaporates from plants. After shedding their leaves, deciduous plants go dormant. Conifers are also adapted to prevent water loss. Their leaves, which look like needles, have thick, waxy coatings that reduce the loss of water from their surface. Some evergreens have special adaptations such as a valve that automatically seals off individual cells that are frozen. This prevents nearby cells from freezing.

Track seasonal changes with Journey North

[Journey North](#) is a free, Internet-based program that explores interrelated aspects of seasonal change. Use their resources as part of a large-scale class project or as extension activities for gifted learners or early finishers. Journey North has excellent resources to help students collect, share and analyze evidence about seasonal changes.

Grades K-12

Animal migration activity guide

Teach students about animal migrations in the US with this fun [activity guide from the National Environmental Education Foundation](#). The activities encourage students to use STEM skills to plot monarch migration paths, design a birdfeeder, understand the phenomenon of animal migration and get involved with online citizen science.

Grades K-5