



### *How Do Animals Survive the Winter? Migration, Hibernation, and Adaptation*

Overview: Students will learn about the different ways animals survive in the winter through reading about animal adaptations and doing class presentations about some of the animals that live in or near aquatic environments. Students will also have the opportunity to create their own animals and come up with habitats and winter adaptations for those creations.

**Subject Areas:** Art, Language Arts, Science

**Grade Levels:** K-5

**Topics:** Animals, biology, ecology, weather

#### **Great Lakes Literacy Principles:**

4. Water makes Earth habitable; fresh water sustains life on land.
5. The Great Lakes support a broad diversity of life and ecosystems.

#### **Materials:**

- *How do animals spend the winter?* reading
- *Animal Winter Adaptation* cards
- *My Animal* handout
- Drawing supplies: colored pencils, markers, crayons
- Craft supplies: cotton balls, glue, popsicle sticks, pipe cleaners, scissors, construction paper, etc.

#### **Introduction:**

Start by asking students to discuss the following question: What do people do to **adapt** to winter weather? Tell students that **adapt** means to change something about your appearance, behavior, or surroundings to make it easier to live and survive. Have students share their ideas with the class. Examples of what students may say: wear warm, winter clothes, use blankets, put salt on the sidewalk, and stay inside. Tell students that animals must also adapt to their **habitat**, or place where they live, to survive

#### **Procedure/Activity:**

1) Pass out the "How Do Animals Spend the Winter?" reading to students. Either read the bolded sentences out loud or have students read them out loud. *Adaptation for young readers: Use "Easy Reading-Animals in Winter"*

2) Put students either into pairs or into groups and pass out one card from the "Animal Winter Adaptations" cards to each pair or group. Have students present their animal to the class. Have them say the name of their animal, what habitat it lives in, and what it does in the winter to survive.

3) *Design Your Own Animal Activity*

First, explain that students will be creating a new animal and that they also need to come up with the habitat(s) and the winter adaptations that animal has. They can either draw a picture of their animals or create a three-dimensional animal using craft supplies. When students are finished creating their animals, they must write about their animal's habitat and what adaptations their animal has to survive the winter on the "My Animal" handout.

Closing: *Gallery Walk*

Have students set their animals and written work on their tables or desks. The class can walk around the room and look at their classmates' creative work.

Adapted from: <http://www.education.com/lesson-plan/amazing-animals-adaptations/>

# How Do Animals Spend the Winter?



The weather gets colder, days get shorter and leaves turn color and fall off the trees. Soon, winter is here. Snow covers the ground.

People live in warm houses and wear heavy coats outside. Our food comes from the grocery store. But what about animals?

## Migrate

Animals do many different, amazing things to get through the winter. Some of them "migrate." This means they travel to other places where the weather is warmer or they can find food.

Many birds migrate in the fall. Because the trip can be dangerous, some travel in large flocks. For example, geese fly in noisy, "V"-shaped groups. Other kinds of birds fly alone.



How do they know when it is time to leave for the winter? Scientists are still studying this. Many see migration as part of a yearly cycle of changes a bird goes through. The cycle is controlled by changes in the amount of daylight and the weather.

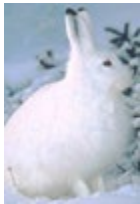
Birds can fly very long distances. For example, the Arctic tern nests close to the North Pole in the summer. In autumn, it flies south all the way to Antarctica. Each spring it returns north again.

Most migrating birds travel shorter distances. But how do they find their way to the same place each year? Birds seem to navigate like sailors once did, using the sun, moon and stars for direction. They also seem to have a compass in their brain for using the Earth's magnetic field.

Other animals migrate, too. There are a few mammals, like some bats, caribou and elk, and whales that travel in search of food each winter. Many fish migrate. They may swim south, or move into deeper, warmer water.

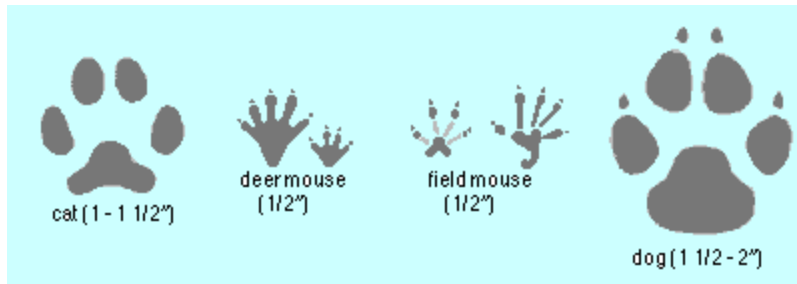
Insects also migrate. Some butterflies and moths fly very long distances. For example, Monarch butterflies spend the summer in Canada and the Northern U.S. They migrate as far south as Mexico for the winter. Most migrating insects go much shorter distances. Many, like termites and Japanese beetles, move downward into the soil. Earthworms also move down, some as far as six feet below the surface.

## **Adapt**



Some animals remain and stay active in the winter. They must adapt to the changing weather. Many make changes in their behavior or bodies. To keep warm, animals may grow new, thicker fur in the fall. On weasels and snowshoe rabbits, the new fur is white to help them hide in the snow.

Food is hard to find in the winter. Some animals, like squirrels, mice and beavers, gather extra food in the fall and store it to eat later. Some, like rabbits and deer, spend winter looking for moss, twigs, bark and leaves to eat. Other animals eat different kinds of food as the seasons change. The red fox eats fruit and insects in the spring, summer and fall. In the winter, it cannot find these things, so instead it eats small rodents.



**Animals may find winter shelter in holes in trees or logs, under rocks or leaves, or underground. Some mice even build tunnels through the snow. To try to stay warm, animals like squirrels and mice may huddle close together.**

Certain spiders and insects may stay active if they live in frost-free areas and can find food to eat. There are a few insects, like the winter stone fly, crane fly, and snow fleas, that are normally active in winter. Also, some fish stay active in cold water during the winter.

## **Hibernate**

**Some animals hibernate for part or all of the winter. This is a special, very deep sleep. The animal's body temperature drops, and its heartbeat and breathing slow down. It uses very little energy.**

In the fall, these animals get ready for winter by eating extra food and storing it as body fat. They use this fat for energy while hibernating. Some also store food like nuts or acorns to eat later in the winter. Bears, skunks, chipmunks, and some bats hibernate.

## **Other Ways to Survive**

**Cold-blooded animals like fish, frogs, snakes and turtles have no way to keep warm during the winter. Snakes and many other reptiles find shelter in holes or burrows, and spend the winter inactive, or dormant. This is similar to hibernation.**

Water makes a good shelter for many animals. When the weather gets cold, they move to the bottom of lakes and ponds. There, frogs, turtles and many fish hide under rocks, logs or fallen leaves. They may even bury themselves in the mud. They become dormant. Cold water holds more oxygen than warm water, and the frogs and turtles can breathe by absorbing it through their skin.

Insects look for winter shelter in holes in the ground, under the bark of trees, deep inside rotting logs or in any small crack they can find. One of the most interesting places is in a gall. A gall is a swelling on a plant. It is caused by certain insects, fungi or bacteria. They make a chemical that affects the plant's growth in a small area, forming a lump. The gall becomes its maker's home and food source.

Every type of insect has its own life cycle, which is the way it grows and changes. Different insects spend the winter in different stages of their lives. Many insects spend the winter dormant, or in "diapause." Diapause is like hibernation. It is a time when growth and development stop. The insect's heartbeat, breathing and temperature drop. Some insects spend the winter as worm-like larvae. Others spend the winter as pupae. (This is a time when insects change from one form to another.) Other insects die after laying eggs in the fall. The eggs hatch into new insects in the spring and everything begins all over again.)

*From: <http://www.sciencemadesimple.com/animals.html#easyread>*

## Easy Reading - Animals in Winter



Winter is cold. There is snow on the ground. People live in warm houses. What do animals do?

Some animals sleep all winter. It is a very deep sleep called hibernation. They need little or no food. Bears and chipmunks hibernate. So do frogs, snakes and even some bugs.

Other animals stay active in winter. It is hard for them to find food. They may live in holes in trees or under the ground to stay warm. Deer, squirrels and rabbits stay active.

Some birds fly south for the winter. We call this migration. They go to a warmer place to find food. Other birds stay here all winter. We can help by feeding them.

*From: <http://www.sciencemadesimple.com/animals.html#easyread>*

# My Animal

My animal is called a

My animal's habitat is

The winter adaptations my animal has are