

# WILDLIFE IN WINTER

## Do you know what different animals do during the winter?

Animals have different strategies for surviving the winter. The most common strategies are *hibernation*, *brumation*, *diapause*, *torpor*, *migration* and *adaptation*.

### Hibernation

*Hibernation* occurs when an animal enters a deep sleep for the entire winter. Animals that hibernate eat extra food during the fall to store up fat before winter begins. When it's time to hibernate, the animal drops its body temperature by 20 °C or more and slows its heart rate and breathing in order to use less energy.

### Brumation

*Brumation* is a state of inactivity that cold-blooded creatures enter during winter. Think of this as hibernation for reptiles and amphibians. During extended cold periods, their bodies produce high levels of sugar and slow or shutdown their internal processes. Some animals can even freeze!

### Diapause

*Diapause* occurs when insects pause their development to prepare for winter. Some insects stop all body processes and sometimes freeze until the weather warms up in the spring, at which point they go back to their regular development.

### Torpor

*Torpor* is a state that some animals enter during the winter. Similar to hibernation, the animal lowers its body temperature and slows its breathing and heart rate. However, animals that use torpor during the winter may wake up occasionally or regularly to hunt, eat and defecate. Some animals are also able to go in and out of torpor regularly, like when it gets very cold at night.

### Migration

*Migration* is the act of moving from one place to another. Some creatures migrate to a warmer location when the weather gets too cold. They may travel alone or in large groups to areas where food is plentiful.

### Adaptation

*Adaptation* to winter weather can take many different forms. Some animals adapt to their colder environment by growing more feathers or thicker fur, and some change colour to make it easier to hide in the snow. Many creatures gather extra food in the fall and store it away to nibble on later. They may also find a nice spot to shelter from the cold weather where they can huddle close together to stay warm.

## Test Your Knowledge!

On the next page, you'll find a quiz about the winter strategies used by some different animals. You can print out the quiz and complete it on paper, or go ahead and fill it out on your computer or tablet!

When you're done, check your answers using the Answer Key on the final page.



# WILDLIFE IN WINTER

## QUIZ



**Little Brown Bat**

- a) Hibernation
- b) Brumation
- c) Diapause
- d) Torpor



**Raccoon**

- a) Migration
- b) Torpor
- c) Diapause
- d) Adaptation



**Green Frog [Aquatic]**

- a) Diapause
- b) Hibernation
- c) Migration
- d) Brumation



**Groundhog**

- a) Brumation
- b) Hibernation
- c) Diapause
- d) Adaptation



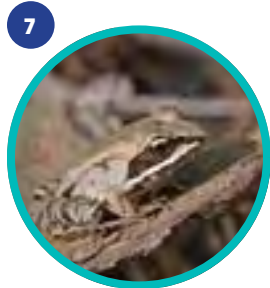
**Black-capped Chickadee**

- a) Adaptation
- b) Brumation
- c) Torpor
- d) Hibernation



**Monarch Butterfly**

- a) Brumation
- b) Migration
- c) Adaptation
- d) Torpor



**Wood Frog [Land]**

- a) Migration
- b) Adaptation
- c) Diapause
- d) Brumation



**Black Bear**

- a) Hibernation
- b) Diapause
- c) Migration
- d) Torpor



**Snowshoe Hare**

- a) Adaptation
- b) Hibernation
- c) Migration
- d) Diapause



**Ruby-throated Hummingbird**

- a) Torpor
- b) Adaptation
- c) Migration
- d) Hibernation



**Woolly Bear Caterpillar**

- a) Torpor
- b) Migration
- c) Diapause
- d) Brumation



**Beaver**

- a) Migration
- b) Brumation
- c) Torpor
- d) Adaptation



**Arctic Fox**

- a) Adaptation
- b) Torpor
- c) Hibernation
- d) Brumation



**Arctic Tern**

- a) Diapause
- b) Migration
- c) Adaptation
- d) Torpor

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# SPOILER ALERT ANSWERS AHEAD!



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## Answer Key

### Little Brown Bat – Answer: **Hibernation**

Hanging out (literally) in frost-free, humid caves or tunnels called *hibernacula* with its friends and family, the little brown bat slows its metabolism and breathing during hibernation. The creature's heart rate drops from 200 beats per minute to 20 beats per minute as it lives off its fat reserves over the winter. It wakes up occasionally to take a sip of water and urinate before heading back to sleep.

### Raccoon – Answer: **Torpor**

To conserve energy when food is not available, the raccoon finds a den for the winter and curls up to sleep. It can make a den in a hollow tree, vacant burrow or even a building. Unlike other animals that enter torpor, the raccoon's body temperature doesn't drop. When the weather gets warmer, the raccoon will get up and wander around.

### Green Frog – Answer: **Brumation**

You might think that an aquatic frog would hide in the mud at the bottom of a pond during winter, but the green frog actually nestles among rocks in oxygen-rich cold water. This way, it can continue to breathe through its skin throughout the winter.

### Groundhog – Answer: **Hibernation**

Considered a true hibernator, the groundhog enjoys a deep sleep in its underground home from October until March. Its heart rate dips from 80 beats per minute to 5 beats per minute, and its body temperature can be as low as 3 °C!

### Black-capped Chickadee – Answer: **Torpor (daily)**

When the nights are extremely cold, this small bird stops shivering and reduces its body temperature by around 12 °C. It might even become unconscious to conserve energy. During the day, the black-capped chickadee stays warm and active by gathering high-energy food at feeders and fluffing up its feathers to reduce heat loss.

### Monarch Butterfly – Answer: **Migration**

Unlike other insects that hibernate, the monarch butterfly flies south to Mexico and California in the winter. Here, thousands of these beautiful butterflies gather to hang onto tree branches and live off their fat. In early spring, they start to feed, mate and journey north again.

### Wood Frog – Answer: **Brumation**

This type of land frog hides under piles of leaves to stay warm during the winter. Due to a high concentration of sugar in its blood, it doesn't turn into solid ice, but it does freeze. The frog's breathing, blood flow and heartbeat all stop. In spring, the animal thaws out and returns to normal!

### Black Bear – Answer: **Torpor**

In fall, the black bear finds a cozy den where it can curl up for a long nap. Its body temperature only drops slightly, but the bear's heart rate goes way down as it snoozes on and off through the winter, living on stored body fat. Unlike true hibernators, black bears can wake up and wander around during the winter.

### Snowshoe Hare – Answer: **Adaptation**

In the fall, the snowshoe hare transforms its thin brown fur coat into a thick winter white coat, which allows it to stay active and gather food in the winter. This crafty critter blends into its snowy surroundings and travels easily through deep snow due to its wide feet. When it's time to rest, the snowshoe hare snoozes in bushes and hollow logs.



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## Answer Key (Continued)

### **Ruby-throated Hummingbird – Answer: Migration**

This tiny nectar-loving bird flies nonstop to southern Mexico and throughout Central America during the winter months. Males go first in September, while females and younger ruby-throated hummingbirds take more time to fatten up before flying south in October.

### **Woolly Bear Caterpillar – Answer: Diapause**

As the temperature and humidity drops, this woolly wiggler's body prepares for winter by producing additional sugars. These act as a natural antifreeze, allowing the creature to hide under leaves and withstand temperatures well below 0 °C for weeks at a time. When spring arrives, the woolly bear caterpillar fills up on food and gains enough energy to form a cocoon and transform into an Isabella tiger moth in just two weeks.

### **Beaver – Answer: Adaptation**

The busy beaver spends several months preparing for winter. The beaver creates a pantry in its den, which it fills with tender sticks to nibble on during the colder months. Staying active all winter also means taking an occasional swim under the ice to snack on the roots of pond lilies and cattails.

### **Arctic Fox – Answer: Adaptation**

During the winter, the Arctic fox grows a heavy white coat to replace its thin brown summer fur. This new camouflage allows the creature to hunt more easily by blending into its surroundings.

### **Arctic Tern – Answer: Migration**

The Arctic tern flies from the Arctic to the Antarctic each year. These birds don't make the journey alone; instead, they travel in a small flock. It's a long trip, even if you have company—about 20,000 km each way!

