

## **How do Animals Survive 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?



### **Hibernation**

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.

### **Why do animals hibernate?**

The biggest problem for most animals in the winter is finding enough food.

If an animal's main source of food is very scarce in the winter, like insects or green plants, it may solve this problem by hibernating. This deep sleep allows them to conserve energy, and survive the winter with little or no food.

Most hibernators prepare in some way for the winter. Some store food in their burrows or dens, to eat when they awake for short periods. Many eat extra food in the fall while it is plentiful. It is stored as body fat to be used later for energy.

Hibernators have two kinds of fat: regular white fat and a special brown fat. The brown fat forms patches near the animal's brain, heart and lungs. Its main purpose is to provide extra body heat. It also sends a quick burst of energy to warm these important organs first when it is time to wake up.

### **True hibernators**

True hibernators go into such a deep sleep that they are difficult to wake and may appear dead. Their body temperature drops, and breathing and

heart rate slow down significantly. For example, a hibernating woodchuck's heart rate slows from 80 to 4 beats per minute, and its temperature drops from 98 F to as low as 38 F. If its temperature falls too low, it will awaken slightly and shiver to warm up a bit.

Other true hibernators include the jumping mouse, the eastern chipmunk, and some species of ground squirrels.

There is even a bird that appears to be a true hibernator. It's called the Poorwill and lives in the mountains of Colorado.

If an animal lives in an area where the winter is mild, it may hibernate only briefly, or not at all. However, even when the weather is severe, hibernators may wake up for short periods every few weeks to use their "toilet rooms" and eat if food is available.

### **How do animals know when to hibernate?**

Hibernating animals have a special chemical in their blood. As the days get shorter, the temperature changes, and food becomes scarce, this chemical triggers hibernation. How and why it happens are still a mystery.

### **Partial hibernators**

Other hibernating animals do not experience major changes in temperature, heart rate and breathing. Animals such as skunks, raccoons and some chipmunks are light sleepers, easily awakened. They may sleep during the most severe weather and wake to roam and eat during milder weather.

The largest partial hibernators are the bears. Although a bear's heart rate may drop from a normal of 40-50 beats per minute down to 8-12, its temperature drops only slightly, allowing it to wake up quickly. For this reason, it is not considered to be a true hibernator.

Black bears—like those living in Utah's coniferous forests—are unique because, unlike other hibernators, they do not eat, drink, or excrete (get rid of waste) at all while hibernating—this can be for as long as six months.

### **Daily hibernators**

There are other animals that go into a hibernation-like state, called a torpor, daily. Many tiny warm-blooded animals use huge amounts of energy. It is difficult for some of them to get all the food they need. To conserve energy,

animals like hummingbirds and little brown bats become dormant (go into a deep sleep) for part of each day.

### **Aestivation (summer hibernation)**

Just as there are places where food and water are scarce in the winter, there are other places where these resources are scarce in the *summer*. To survive in these places, some animals *aestivate* during the hot, dry summer months. Aestivation is a dormant state similar to hibernation. The kangaroo rat and the desert tortoise can survive in desert habitat of southwestern Utah by aestivating in underground burrows during the summer.

1. The word *hibernation* comes from the Latin word for *winter*. Latin was the language spoken by the ancient Romans. From what Latin word do you think the word *aestivation* comes?
2. What is hibernation?
3. How do hibernating animals prepare for the winter?
4. Name some animals that hibernate?
5. The article says that animals '*conserve* energy' by hibernating. What does *conserve* mean?
6. Animals may hibernate when food is *scarce*. What does it mean for something to be *scarce*?

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7. During true hibernation, "the animal's body temperature drops, and its breathing and heart rate slow down *significantly*." What does significantly mean?
8. What happens to a hibernating woodchuck if its body temperature drops *too* low?
9. The article says that black bears are *unique* hibernators. What does it mean to be *unique*?

There are other partial hibernators. What makes black bears unique?

10. What is an antonym for the word *partial*?
11. How do hummingbirds conserve energy?
12. What is aestivation?

In what type of habitat are animals that aestivate usually found?

Name two Utah animals that aestivate.