

Bats

A Reading A-Z Level O Leveled Reader

Word Count: 1,200

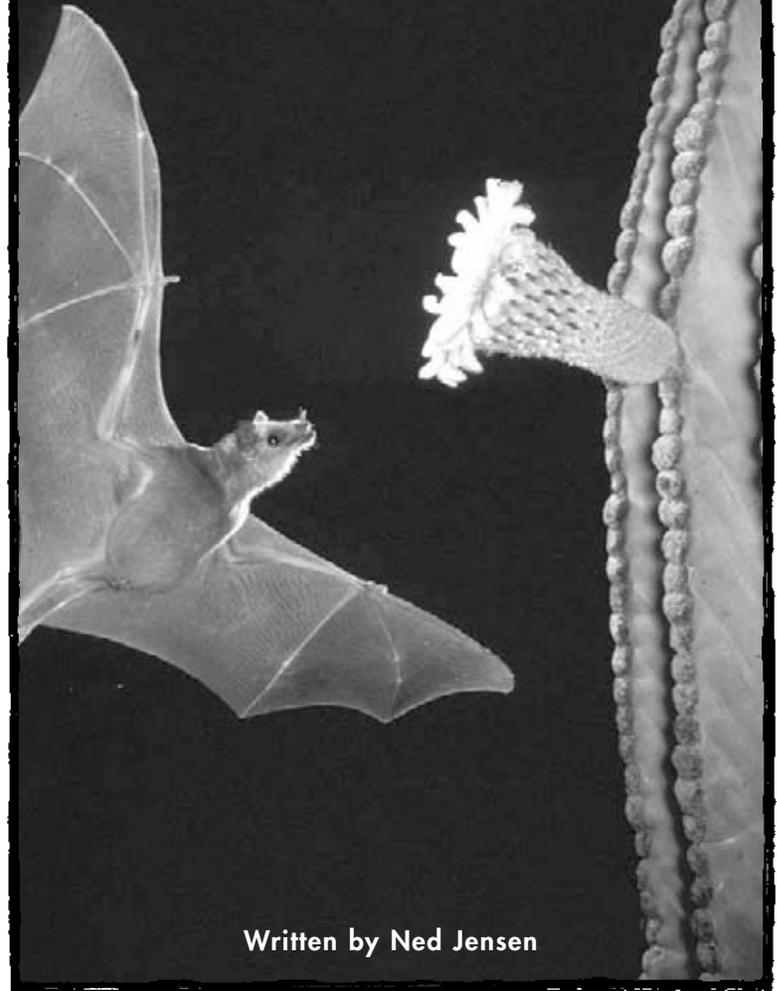


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Written by Ned Jensen

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Back cover photo: Jamaican fruit bat in flight, taking red almond

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Level O Leveled Reader
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Correlation

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A cloud of bats darkens the sky in the evening.

Introduction

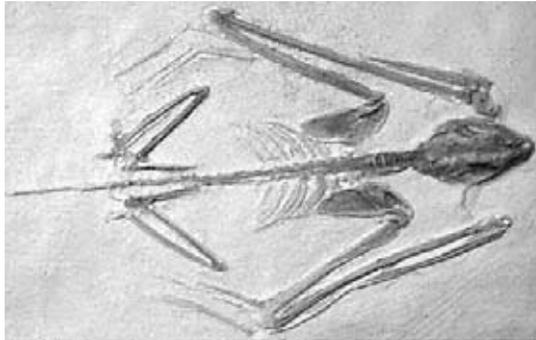
Enter a cave just as night approaches, and you might see a dark cloud pouring like smoke from the cave. It's a cloud of sorts, but it's not a rain cloud—it's a "bat cloud."

Bats like to spend the daytime in the cool darkness of a cave hanging upside down from the ceiling, but nighttime is different—it is time to hunt. So thousands of bats take flight from the cave. They dive and dart about, snatching insects from the air.

About Bats

Bats are one of the oldest groups of mammals to have lived on Earth. According to fossil records, they were sweeping through the air almost 60 million years ago. Bats flew through the Earth's skies before humans walked on the planet. Although bats have been around for all that time, they haven't changed much. Ancient fossils show that bats of long ago were very much like modern-day bats.

Bat fossils are rare because their small, light skeletons do not preserve well. Also, many bats live in tropical forests, where small bones are rarely preserved.



There are close to 1,000 kinds of bats. In fact, there are more kinds of bats than there are kinds of any other mammal. These bats are placed into two groups—microbats and megabats.

Microbats are the smaller type of bats.

The smallest microbat is the bumblebee bat, which is about as long as a paper clip. Microbats live in a wide range of places and can be found throughout the world. They eat mostly insects, but some also eat small fish, mammals, and amphibians.



This bat is a type of microbat.



This fruit bat, a type of megabat, nibbles on a fig.

Megabats are larger bats. The largest megabat is the Malayan flying fox. It is so large that with its wings spread out, it would stretch the length of the average-sized bathtub. Megabats eat fruit. They are found in warm, tropical areas where lots of fruit grows all year long.



A Gambian fruit bat (above); a Mexican funnel-eared bat (right)



Bat Features

Bats seem to get a bad rap when it comes to looks. In fact, some people might consider them downright ugly. Others think bats look fierce and scary. If you get to know bats better, you might change your opinion of them. You might even think that some bats are rather cute.



This bat has a bright yellow beard (above); a spotted bat emerges from its home (left).

Bats, like most mammals, are covered with hair or fur, which is soft and quite short. There are a few types of bats that have only a little fuzz on their bodies. No wonder these bats are called naked bats. Bat fur comes in as many colors as human hair does. There are bats with brown, black, gray, red, and even yellow fur.



A long-nosed bat shows off its wings while feeding.

Bats are the only mammals that can fly. Flying squirrels are mammals, too, but they don't really fly. They glide through the air after jumping from a tree branch.

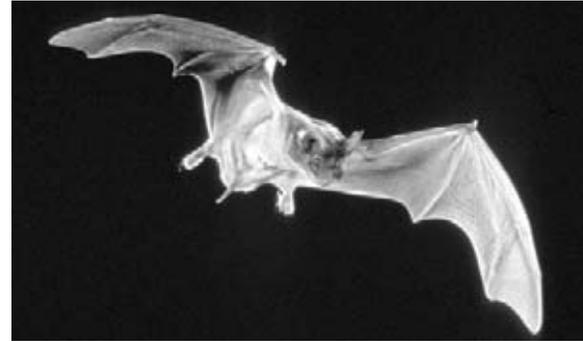
Bat wings are made of two thin layers of skin. The skin is so thin that you can almost see through it. A bat's wings are really modified hands that even have small thumbs. The skin stretches between long, thin bones when the bat is in flight and folds up when the wings are not in use. A bat's wings are used for more than flying. If a bat is too warm, it stretches out its wings so heat can escape to cool the bat. If the bat is too cold, it can wrap itself in its wings.

Like you, bats have two sets of teeth. The baby teeth are lost early in a bat's life. They are replaced by a set of 26 to 28 adult teeth. These teeth are sharp and are used to cut and crush food.

Despite what many people believe, bats aren't blind. Bats use their eyes to see during the day and in the early evening. Let's learn how bats find food in the dark.



A red bat roosts in a tree.



A Mexican free-tailed bat in flight

Flight and Feeding

Bats are skilled fliers. The bones of the bat's wings can bend easily to change the shape of the wings. By changing the shape of their wings, bats can quickly change the direction of their flight. In addition to wings, most bats also have a piece of skin that stretches between their legs. When flying, bats spread their legs so the pouch of skin can be used to move up and down and swerve from left to right—similar to the rudder on a boat.

Do You Know?

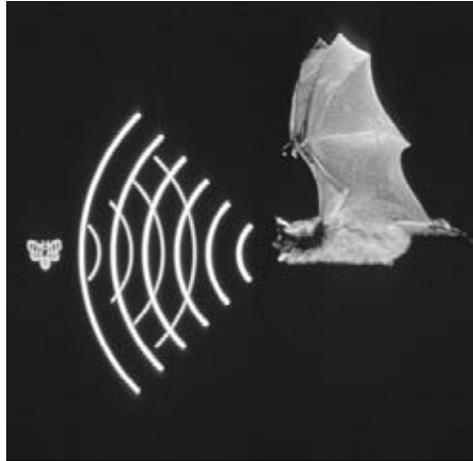
Bats are able to fly high and fast. Bats have been clocked going as fast as 100 kilometers per hour (62 mph). This is as fast as a car speeding down a highway. Some bats can fly 3.2 kilometers (2 mi.) high.

We now know that bats are skilled fliers. But skilled flying alone doesn't make bats good hunters. Since bats do most of their hunting in the dark of night, they need more talents than flying in order to hunt.

Microbats also have another feature to help them hunt—**echolocation**. This is the use of sound waves to help bats locate insects in flight. The photo and text below show how bats use echolocation.

How Echolocation Works

- 1 The bat sends out a constant stream of beeping noises.
- 2 The sound waves spread out ahead of the flying bat. 
- 3 Sound waves strike objects such as flying insects.
- 4 Sound waves bounce off the insects and echo back to the bat. 
- 5 The bat picks up the reflected sound with its super-sensitive ears.
- 6 Nerves carry a signal from the bat's ears to its brain. The brain interprets the size, distance, speed, and direction of the insect. Zap—it's dinnertime.



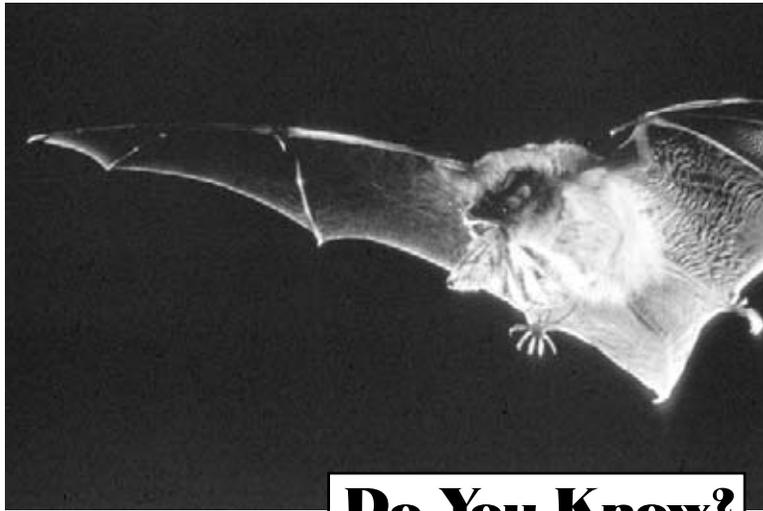
A California leaf-nosed bat is about to grab a cricket for dinner.

Do You Know?

Microbats have big ears and a very good sense of hearing. A California leaf-nosed bat flying through the air can even hear a cricket walking across the ground below.

When a bat finds an insect, it sends out more beeps or clicks and sends them out much faster. It might send out up to 200 beeps or clicks per second. As it closes in on its target, it sweeps up the insect with a wing and scoops it into a pouch that is formed with the skin between its legs. Later, the bat will stick its head into the pouch to gobble up the meal. Bats also snatch insects out of the air with their mouths.

The combination of skilled flying and echolocation makes microbats excellent hunters at night. The next time you are out at night, take a look skyward. You will likely see bats darting through the air, collecting insects in their tail pouches. Observe how quickly they change direction. They are responding to brain signals telling them where food can be found.



A bat captures a moth in its mouth

Do You Know?

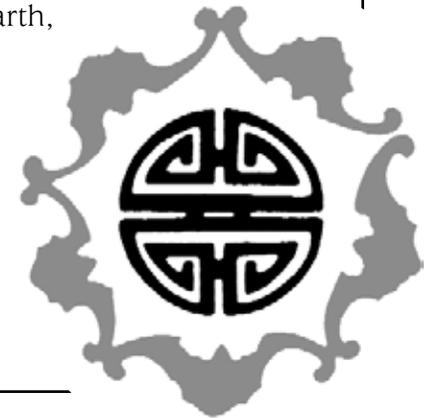
Some microbats eat up to 600 mosquitoes an hour, and some will eat up to 3,000 insects in a single night of hunting.

Bat Behavior

Bats are not the mean, frightening creatures that many people think they are. They don't get into your hair or attack people, and there are no human vampires that turn into bats. The truth is that bats are shy, gentle creatures. In fact, bats are our friends. Just think of how many insects would be around if it were not for bats.

Do You Know?

In China, bats are considered good luck. This artwork, which is the logo for Bat Conservation International, comes from an ancient Chinese design called the wu-fu symbol. In Chinese, the word for *bat* and the word for *good luck* have the same sound, *fu*. The word *wu* means *five*. Each of the five bats in the logo represents one of the five elements (earth, air, fire, water, and metal) as well as one of the five happinesses (health, wealth, long life, good luck, and tranquility). Throughout history, Chinese rulers decorated their robes with bat signs.





A Mexican funnel-eared bat hangs from the ceiling by its toes.

Can you imagine sleeping while hanging upside down with blood rushing to your head? Well, it's not a problem for bats. Bats sleep upside down. They cling to the undersides of surfaces using the claws on their toes. Hanging upside down makes it easy to take off to fly. All they have to do is let go and begin flapping their wings.

Many bats **hibernate** in the winter when there are no insects to hunt. Before hibernating, bats eat lots of food, which they store as extra fat. They depend on this fat to survive during the winter.



These bats hibernate close together for extra warmth.

Some bats **migrate** to warmer areas during the winter. Red bats fly all the way from Canada to Mexico rather than spend the winter in the cold. There is even a bat in Europe that flies over 1,600 kilometers (1,000 miles) to spend the summer in Russia. Don't expect to see bats migrating, since they fly at night.

Female bats give birth to one or two babies every year. They are the only flying animals that nurse their young on milk. After a baby bat is born, it crawls up to its mother's chest and clings there with its claws. It feeds off its mother's milk and even clings to the mother's fur when she goes hunting. But baby bats don't hang around for long. Many are able to fly and catch their own meals only three weeks after birth.



A baby Gambian fruit bat clings to its mother.

Do You Know?

Some bats are threatened and could become extinct. One colony of bats at Carlsbad Caves, New Mexico, in the United States, is declining drastically in population. The colony once had over 8 million bats. Today, only about 250,000 bats remain.

Try This!

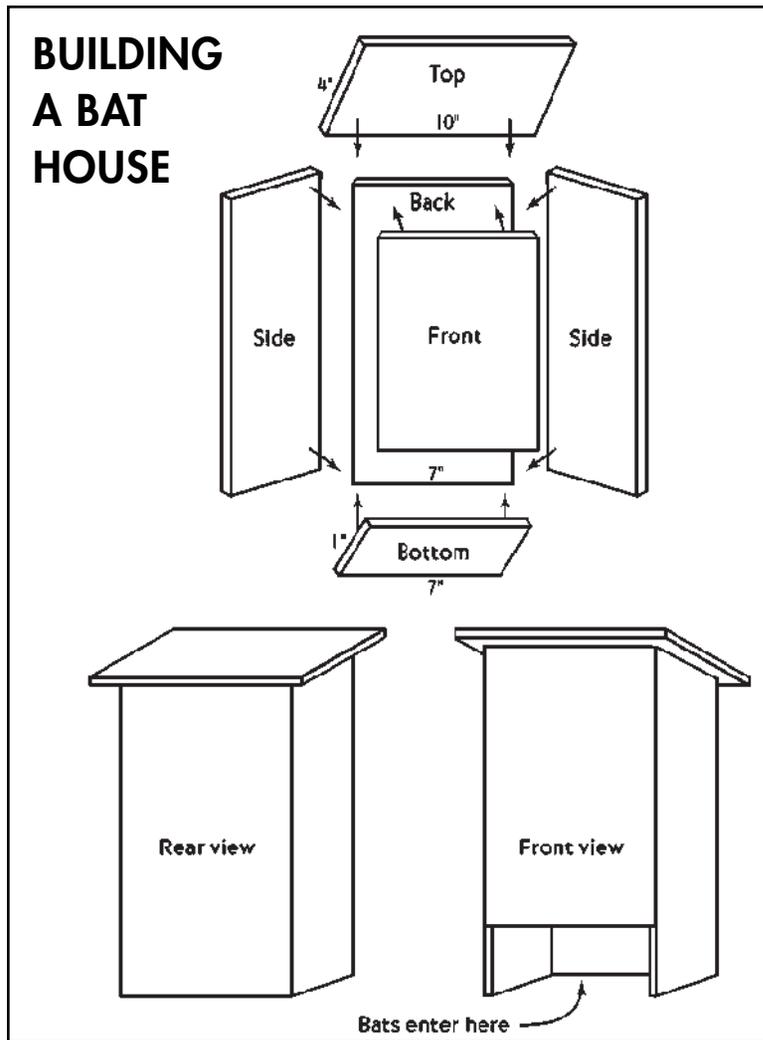
Bats are important animals, and they need places to live. You can help by building a bat house. Here's how to do it.

Materials:

hammer • 24 nails • saw
24" x 27" piece of plywood
9" x 21" piece of screen

Steps:

- 1 Get some wood. Outdoor plywood that is 1/2" to 3/4" thick works well.
- 2 Measure and then cut five pieces of wood from the plywood as follows:
1 back piece9" x 27"
2 side pieces3" x 27"
1 front piece7" x 21"
1 roof piece4" x 10"
1 entry piece7" x 1"
- 3 Put a piece of 9" x 21" screen on the back piece before nailing the house together. The screen gives the bats something to hang onto.



- 4 Nail the boards together as shown.
- 5 Hang your bat house high in a tree or on the side of a building. Hang it where it is not too sunny.

Glossary

echolocation	finding objects by listening to bounced sound waves (p. 13)
hibernate	sleep through the winter (p. 18)
megabats	large bats (p. 7)
microbats	small bats (p. 6)
migrate	moving from one region to another with the seasons (p. 18)

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