

## BATS—ANIMALS THAT “SEE” WITH THEIR EARS

Presented by

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The animal kingdom—from ants to zebras—contains many strange-yet-wonderful creatures. For example, there are spiders that dig a hole in the ground, cover it with a trap door, and then leap out of the trap door to catch their surprised prey. There are lizards (known as chameleons) that can change colors in a matter of seconds in order to scare or hide from their enemies. There are even animals (like camels) that can go for weeks at a time without drinking a drop of water. But surely, some of the most amazing of God’s creatures are those animals that “see” with their ears.

Most animals have excellent eyesight, and use their keen eyesight to hunt for food. For instance, an owl has very large eyes, which it uses to search for food at night. Cats, too, have eyes that open wider as the night gets darker, so that they can hunt even at times when humans can barely see. An eagle can spot a tiny mouse from extremely high up in the air—and from very far away!—because its eyesight is so good.

But some animals have very tiny eyes, and very poor eyesight. So how do they hunt for food? God has given them another way to “see”—**by using their ears! What?! Animals that “see” with their ears?!** Yes, believe it or not, it’s true. Some animals really do “see” with their ears. In fact, a bat is just such an animal. Bats have **tiny** eyes. But they frequently have **extra-large ears**. Scientists now know that bats “see” by using their ears, in a process known as “echolocation.” Here is how it works.

A bat can make sounds that humans cannot hear. The bat sends out sound waves that can strike an object. Then, a fraction of a second after the sound waves strike the object, an echo returns to the bat’s large ears and hits its eardrums. The bat not only hears the echo, but also is able to tell how far away the object is—and in what direction. All of this happens so quickly that the bat is able to use the echo to locate the object, even though it may be very far away. This is why it is called “echolocation.”

Scientists have learned that by using echolocation, bats can fly through difficult spaces (like caves that are full of sharp rocks or forests that are full of trees and tree branches). And they can do such things without any trouble whatsoever, even though their eyesight is extremely poor. Even more impressive, however, is the fact that bats can use echolocation to hit an insect with sound waves, understand where the insect is, and catch it and eat it **in mid-air!** In fact, bats are **so good** at doing this that it is almost impossible to trick them. In a series of experiments, scientists threw things like rocks in front of bats. The bats sent out sound waves and “saw” the rocks, but they did not try to eat them as they would a flying insect. Somehow the bats are able to tell by the echoes whether or not the object is something that can be eaten! How amazing is **that?!**

You may have heard of radar, which allows humans to “see” things even though they are hundreds of miles away. Or, you may have heard of sonar, which ships use to “see” things deep within the oceans. Both radar and sonar were developed after scientists studied echolocation in bats. Recently, scientists discovered that dolphins also use echolocation. So, it might be said that bats use a kind of “radar,” while dolphins use “sonar.”

God has designed creatures in the animal kingdom so well so that they can survive. The writer of the book of Proverbs put it like this: “The hearing ear and the seeing eye, the Lord has made them both” (Proverbs 20:12). He certainly did! But who could possibly have guessed that God also created ears that could “see”? As God asked Abraham in Genesis 18:14, “Is anything too hard for the Lord?” Apparently not!

We already have learned **so much** from many of the strange-yet-wonderful animals that God made. And we probably still have much more to learn! But one thing we have learned for sure is that God is **much** smarter than we could ever hope to be. As Isaiah said in speaking for God, “My thoughts are not your thoughts, and my ways are not your ways. As the heavens are higher than the earth, so are My ways higher than your ways, and My thoughts than your thoughts” (Isaiah 55:8-9). Only God can create an animal that “sees” with its ears. How amazing God is! I’m glad that He is our heavenly Father, aren’t you?