

Echolocation Reading Comprehension

Name _____

Echolocation is a process used by bats to “see” using sound. Contrary to popular belief, bats aren’t blind, but they use echolocation to search for food and travel in the dark. Bats can produce echolocation sounds by contracting their voice box, or larynx. These sounds are called ultrasounds because they transmit at extremely high frequencies and they help bats create a sonic map of their surroundings. After bats produce an ultrasound, they then listen to the echoes of that sound to “determine” how long it takes for the sound to echo back to their ears. The longer a sound takes to return to the bat, the farther away an object or insect might be.

Bats’ calls differ based on their end goal: there are different calls for searching, feeding, and socializing. When hunting, for example, the bat may emit a series of quick calls to isolate an insect’s location so it can swoop in and snatch it. Each bat species also has its own call pattern, meaning that we can identify bat species based on the sounds made during echolocation. There are two general categories of echolocation cycles. One is low-duty, during which bats emit short calls and contract their middle ear muscles. When the middle ear muscles are released, bats can hear echoes of the initial sounds made and use the echoes to determine their distance from a targeted prey. The second category, high-duty, involves continuous bat calling. The subsequent echoes come back at a different frequency while the bat is in flight.

Scientific studies on echolocation have revealed that the process may have evolved over time as an adaptive survival mechanism. Today, scientists continue to study the varying call patterns of different bat species as well as evaluate fossil remains from bats in order to fully understand the elusive process of echolocation.

- 1. What is another way to say the phrase, “Contrary to popular belief”?**
 - A. Besides using echolocation...
 - B. Most people would be surprised to find out...
 - C. People have different feelings on...
 - D. Most people aren’t sure about...
- 2. According to the passage, the distance of an object is determined by...**
 - A. the frequency of the echo.
 - B. the size of the sonic map.
 - C. the length of time it takes for an echo to be heard.
 - D. the number of echoes it takes before an object is located.
- 3. Which of the following is NOT true about bats? Circle ALL that apply**
 - A. All species of bats have the same the same call pattern
 - B. Bats are blind
 - C. Bats emit different kinds of calls for different situations
 - D. Ultrasounds are sounds transmitted at very high frequencies.

4. Which of the following is a possible explanation for why bats developed echolocation?

- A. To escape from prey
- B. To communicate with other species
- C. To better survive in their environments
- D. To become more elusive

5. Which of the following is COMPARED and CONTRASTED in the second paragraph?

- A. The diets of different kinds of bats
- B. Scientific theories on the origin of echolocation
- C. The different call patterns of different bats
- D. Low-duty and High-duty echolocation cycles

6. If humans had echolocation...

- A. they wouldn't need cars.
- B. they wouldn't need flashlights.
- C. they wouldn't need eyes.
- D. they wouldn't need ears.

7. What does "isolate" mean in the following sentence?

When hunting, for example, the bat may emit a series of quick calls to isolate an insect's location so it can swoop in and snatch it.

- A. Describe
- B. Pinpoint
- C. Change
- D. Hear