

1st Grade Activity: Bat Hearing Experiment

Bats use their sense of hearing to help them find food, their ears are very sensitive.

(NGSS Disciplinary Core Ideas 1-LS1.A Structure and Function; 1-LS1.D Information Processing)

Pre-Activity Questions

- How do bats catch their food in the dark?
- Do bats have good hearing?
- Do all bats use echolocation?
- Are bats blind?

Activity

- Scientists have discovered that bats use echolocation to find their prey. When a bat is flying, it makes a series of high-pitched squeaks that humans can't hear. The sounds hit objects and bounce back to the bat, like an echo. Bats are able to tell the size and distance of the object by the echo that returns with their fantastic hearing. This allows the bat to lock in on its prey, swoop down, and catch it, yum!
 - There are two different groupings of bats: **MEGABATS** which are fruit and nectar feeding bats and **MICROBATS** that feed off of insects or other forms of protein like frogs, snakes, blood (don't worry, not human blood) or even other bats. While bats are nocturnal hunters, only microbats use echolocation. Both groupings of bats have good eyesight and excellent hearing. Can you echolocate like a bat?

Let's Investigate!!!

Materials

- Multiple participants
- Blindfold or eye covering

Steps

1. Pick one participant to be the bat. Place a **blindfold** or **eye covering** over their eyes to block their vision.
2. Arrange the other participants in a circle around the bat.
3. Select one participant to be the prey.
4. Ask the bat to call out 'echo' from the center of the circle. The prey should respond 'location'.
5. The bat continues to say 'echo', moving slowly toward the location of the prey. Once the bat has found the prey, he or she stops and takes off the blindfold. Allow other participants to take turns at being the bat or the prey.
6. Try varying the size of the circle - space further apart or closer together to see if this makes any difference.

Variations

1. Follow steps 1 & 2 above.
2. Give each participant a noise maker such as a pot and drum, whistle, bell or hand claps will work just fine.
3. Select the noise of the prey; make sure to be consistent.
4. When the bat calls out 'echo', the group response will be their noise maker.
5. The bat will continue to call out 'echo' until they're able to identify the noise made by the prey within the group.
6. Try varying the size of the circle - space further apart or closer together to see if this makes any difference.

Post-Activity Questions and Activities

- Was it difficult finding the prey using just your hearing? If you tried the variation, was it easier or harder to identify the prey with other noise?
- Do you think urban noises like cars and trucks and big city noises make it difficult for bats to hunt?
- Head outside with an adult after dark, how many bats do you see or hear hunting?
- Remember, not all bats use echolocation, try investigating how MEGABATS find their food with the fruit bat activity.
- Want to encourage bats in your backyard, check out these simple bat house building instructions.