

Bat Echolocation

By Katy Key (Grades PreK–8)

KEYWORDS: insectivore, echolocation, predator, prey

OVERVIEW: Students will understand the meaning of echolocation and how it is helpful to bats.

STANDARDS:

TIME: 30 minutes, everything in bold is said by the instructor

MATERIALS:

-blindfold

OBJECTIVES:

1. Students will rely on hearing to locate other group members.
2. Students will attribute a bat's open mouth to the use of echolocation.
3. Students will conclude that bats are specialized to rely on echoes for navigation.

SUGGESTED PROCEDURES:

OPENING

Almost all bats in North America are insectivores (insect eaters). A single little Brown Bat can eat as many as 3,000 mosquito-sized insects in a single night. Even though people think that bats are blind, they actually can see quite well. However, their sight is not what makes them skillful predators. Using their voices and ears, bats locate objects by echolocation. While flying, bats let out high pitched squeaks through their mouths or noses. Humans are not able to hear these sounds. The bat's squeaks radiate out until they hit an object, and bounce back to the bats as an echo. After hearing this echo, bats can judge the distance, location, and size of objects in their paths. If the object seems large, bats stay away. If the object is small and moving, the bat will dive quickly to catch the insect prey.

DEVELOPMENT

- Have students form a large circle. **The circle will represent the area where the bat will be looking for food.**
- Ask for a volunteer to be the hungry bat. Have that student come to the center of the circle.
- Ask if anyone knows what kinds of insects are the prey for this predator. As students make suggestions (mosquito, gnat, moth, beetles, crickets) have them also come into the center of the circle until you have three to five types of prey. (Lightning bugs are not bat food because they are poisonous.)
- Explain that when the game starts, the bat will be blindfolded not because it cannot see, but because hearing is it's most important sense. The bat will send out it's sonar by saying "Bat!" often. Tell the insects that this represents the bat's sonar signal hitting them to see if anything is near. Insects must return the signal each time by saying "Insect!" The bat must tag the insect to "capture" it. The captured prey becomes part of the circle. The children in the circle can whisper "Tree" when the bat gets close to them.
- Allow the students to play several rounds=

CLOSING

End with a discussion of the following questions:

- Who is the predator and who is the prey in this activity?
- Describe how echolocation works.
- What special adaptations does an insect-eating bat have that helps it find food?