

Activity 18:

Beneficial Bats



Objective: Investigate, through role play and demonstration, how bats navigate and find food



Time: 40 Minutes



Materials: Blindfold, open area, stopwatch or timer and *Beneficial Bat Stats* Worksheet

Ask the group to draw a picture of a bat. Give them a few minutes to complete their drawings. As they work, ask them to talk about what a bat is. Have them to describe what a bat looks like, how a bat acts and what a bat eats. As you discuss bats with your group you likely will find a great deal of misinformation about these small creatures. Share the bat facts with your students and stress that bats can be very beneficial to a garden setting because they consume a great number of insects.

Ask your Wildlife Gardeners if they have ever heard the expression “as blind as a bat”. Explain that although bats are not really blind, and some do have poor eyesight, poor vision does not cause problems for bats. Bats have adapted to find food a very different way and have developed another way of “seeing” what is around them. They use **echolocation** to sense what is around them and to find food. Bats squeak as they fly. Their squeaks bounce off objects and they hear

the echoes. This allows them to sense the location of an object so they do not fly into it. This also allows them to find food, such as mosquitoes and other insects that fill the night sky.



Tell the group that they are going to play the *Echolocation Game*. Divide the class into two groups. Select one person from each group to be a bat. Have the first group spread out to form a large circle with the second group inside. Tie a bandanna or cloth around the “bat’s”

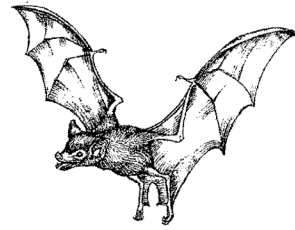
head to make a blindfold. The students inside the circle will be pesky insects—mosquitoes in this game. The mosquitoes should fold their arms and “fly” about the circle. The first group that forms the circle contains the mosquitoes and keeps the blindfolded bat from wandering away from the group.

The bat walks around the area and squeaks. The mosquitoes must immitate or make an echo of the bat’s squeak. The bat can track each mosquito by its echo. To “eat” the mosquito, the bat touches the person echoing the squeak. The “eaten” mosquito should step outside the circle. Allow the bat to “feed” for no more than one minute. After time is up, determine how many insects the bat ate. If possible, allow each gardener the chance to be a bat for one minute.

Be sure to discuss safety before beginning the *Echolocation Game*. No running is allowed and students should be careful not to bump into the hungry bat when the bat is blindfolded.

When the game is over, ask how many insects the bats ate. Pass out the *Beneficial Bat Stats worksheet* to each student. Ask the group to guess how many insects a single bat can consume in one hour and record their guesses. Tell the group that bats can eat as many as 1000 insects in one hour. Have the group determine the following:

- How many insects are eaten if one bat feeds for two hours?
- How many insects are eaten if three bats feed for one hour?



Bat facts

- Bats are mammals.
- Bats are the only mammals capable of true flight.
- Bats consume many insects considered pests.
- Bats that eat fruit and drink nectar help disperse seed and are important pollinators.
- Bats are very clean and spend a great of their resting times grooming themselves.
- Bats rest, hibernate and even bear young hanging upside down.
- Bats can find very unconventional living spaces by roosting from the roof of a caves, hollow trees or foliage, barn ceilings, attic and even under bridges.
- Bats can be found on every continent except Antaretica.

- How many insects are eaten if 10 bats feed for five hours?

Tell the group that bat colonies often consist of thousands of bats. Together, determine how many insects 2000 bats could eat in a two-hour period.

In five hours?

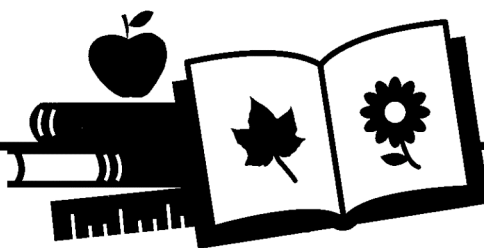
Teaching Concept 4

Have the students create a graph showing the number of insects a single bat can consume if feeding for five hours a night. The graph should track the cumulative daily total of insects consumed daily for a month. Have students use the graph to estimate the number of insects consumed over a 10-year life span.

Finally, have each Wildlife Gardener create a poster to be used as a public

service announcement to educate others about beneficial bats.

For more information about bats, including how to create a bat house to add to your garden habitat area, visit the resource links at www.jmgkids.org/wildlifegardener



◦ In the Classroom

Ask the group *how* they hear sounds. Explain that sound travels in waves and we can hear it once sound waves hit our ears. The same is true for bats. Ask the group to describe a wave. What makes waves? They probably associate waves with water. Reiterate that sound travels in waves too. We can't see sound waves, but they are present.

Have everyone stand up side by side. Tell the group that they are going to pretend to be a wave. You are going to start the wave by touching a person on one end of the line. That person will raise his/her hands and then put them back down. The next person should do the same. Everyone follows until the last person finishes.

◦ Cut a piece of plastic wrap that is large enough to cover a cake pan with overlap (a 9"x12" pans works well). Place the wrap on top of the cake pan and stretch it so that there are no wrinkles. Secure it tightly with tape. Scatter brown sugar or flour on the plastic. Hold the cookie sheet above the cake pan. Hit the cookie sheet with the spoon. The flour will bounce.



◦ Explain to the group that the flour bounced because sound waves traveled from the cookie sheet to the cake pan and vibrated the plastic. Just as the sound waves caused the movement in the plastic, sound waves travel to our ears and cause movement in our ear drums, allowing us to hear.

Beneficial Bat Stats



Estimate how many insects one bat can consume in just 1 hour? _____

Actual number of insects one bat can consume in just 1 hour _____

Bats are nocturnal and feed through the nighttime hours.

How many insects could one bat eat in 2 hours? _____

How many insects could one bat eat in 5 hours? _____

Feeding Conversions

How many insects would be eaten if 1 bat fed for just 30 minutes? _____

How many insects would be eaten if 2 bats fed for 1 hour? _____

How many insects would be eaten if 5 bats fed for 2 hours? _____

How many insects would be eaten if 5 bats fed for 5 hours? _____

Often times thousands of bats will live together in a single colony.

How many insects could 2000 bats eat in 2 hours? _____

How many insects could 2000 bats eat in 5 hours? _____

Why do you think bats are beneficial animals to have in a garden? _____
