

# LESSON 8:

# MOSQUITO HUNTING

Students will create and decorate a bat mask and then role play a simulation demonstrating echolocation.

## OBJECTIVES

- How do bats find their food in the dark?

## SUPPLIES

### TEACHER PURCHASES

- None

### LESSON KIT #8

- Bat mask template (cut 2 out before class so that students can use them to trace on their papers)
- Black String
- Black Construction paper (1/2 per student, plus extras)

### OTHER SUPPLIES

The remaining supplies for this experiment can be found in the following locations in your bin

#### IN BIN

- Tupperware containers (2)

#### SMALL MATERIALS BOX

- Garden rocks

#### PENCIL BOX

- Scissors (1 per student)
- Pencils (1 per student)
- White crayons (share amongst students)
- Clear Tape (2 rolls)

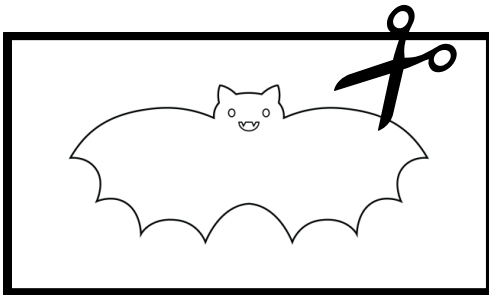
# LESSON 8:

# MOSQUITO HUNTING

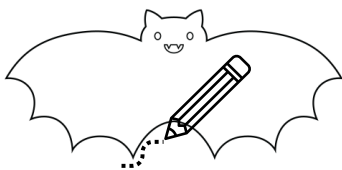
Students will create and decorate a bat mask and then role play a simulation demonstrating echolocation.

## TEACHER PREP

- Cut out bat template from paper (so that students can trace around it)
- Cut black construction paper in half so each student has a half-sheet of paper
- Put a handful of pebbles into 2 plastic containers, seal completely.



Teacher cuts out bat templates



Students take turns tracing around the bat templates onto their black construction paper.

## HOOK

🕒 2-3 min

Have you ever been sitting outside at night and right after the sun goes down you notice a little black animal swooping above your head? We all probably know what these are. Do you know why bats come out right at dusk? Discuss as group.

## DISCUSSION

🕒 3-5 min

Bats are nocturnal. What does that mean? How are bats able to spend all of their awake time in the pitch dark of the night? Do you know what bats eat, and how do they find their food in the dark?

Let students ponder questions in pairs or groups. Bats eat insects like mosquitos, moths, and crickets. They also eat the nectar from flowers and help to pollinate flowers by spreading seeds from place to place. Bats are very helpful mammals because they eat bugs that are huge pests to humans, animals, and plants.


Today, let's try to figure out how bats are able to catch fast moving insects in the dark of the night. Bats actually have decent eyesight, BUT, their greatest sense is their hearing.

## HYPOTHESIS

🕒 2-3 min

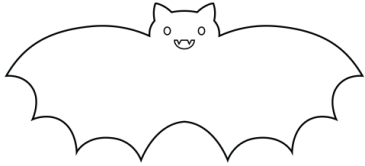
How do you think bats are able to catch fast moving insects at night?

## EXPERIMENTATION

 30-35 min

### ACTIVITY I - CREATE A BLINDFOLD/MASK

1. Pass out a sheet of black construction paper to each student along with white crayons and a pencil.
2. Each student should take turns tracing the bat template (which the teacher cut out) onto their paper with a pencil.
3. Have students spend around 10 minutes decorating their bat masks with the white crayons.
4. After they are finished decorating, instruct students to cut along the line they traced with their pencil.
5. Students will receive a piece of string to fit the circumference of their heads.
6. Teacher will help tape the string to each end of the bat wing to create the mask.

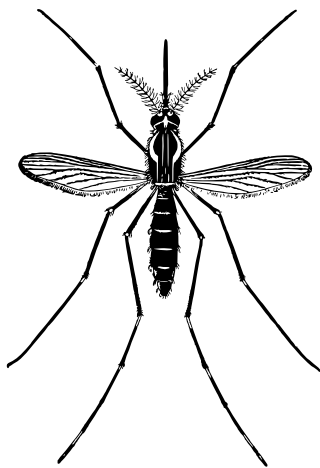


### ACTIVITY II - ECHOLOCAION SIMULATION

Bats use what is called echolocation to catch their food. Echolocation means locating objects by reflecting sound. Basically, the bats send out a sound, the sound bounces off the mosquito and comes back to the bat's ears. The bat then knows what direction the "echo" came from.

We are going to act out echolocation today by simulating bats and mosquitos in a fun game!

1. For the first round, select two students to use their newly created "bat masks." (The game will be played for multiple rounds so any student who wants to be a "bat" will have a chance.)
2. The first two "bats" will stand up and go to one corner of the room. The teacher can help them to put on the mask/blindfold. The students will stand facing the wall.
3. All other students will be the "mosquitos" - teacher selects two students to have the plastic container of rocks. **Instruct all the students to NOT reveal if they have the container or not.**
4. When ready, the "bats" will turn around and make a squeaking sound. When they hear a squeak, the "mosquitoes" who have them will shake their plastic containers to make a noise.
5. The "bats" will follow the noise in order to find and capture the "mosquitos."
6. Repeat for multiple rounds with students taking on new roles.
7. Make sure to observe "bats" so that they don't hurt themselves!



## EXTENSION

Ask students to visualize that they are an illustrator working for an author writing a science book about echolocation. They must create an illustration showing what echolocation means. They can use labels for their illustration, but cannot use sentences to explain it.

## OBSERVATION & EXPLANATION

🕒 10-15 min

In reality, the mosquitos may not be making loud noises to attract the bat's attention. What is really happening is the bat's squeak is projecting out into the air and when it hits the mosquito's body, the sound is echoing back to the bat. The bat can then tell where the mosquito is.

Can you think of an example of how humans might experience echolocation? Discuss caves & canyons and how we might hear echoes in those locations.

## CONCLUSION

🕒 5-7 min

Fill out Hypothesis/Observation/Conclusion charts on the white board together as a group.

Instruct students to clean their stations. Make sure to leave the classroom the way you found it.

## ASSESSMENT

🕒 3 min

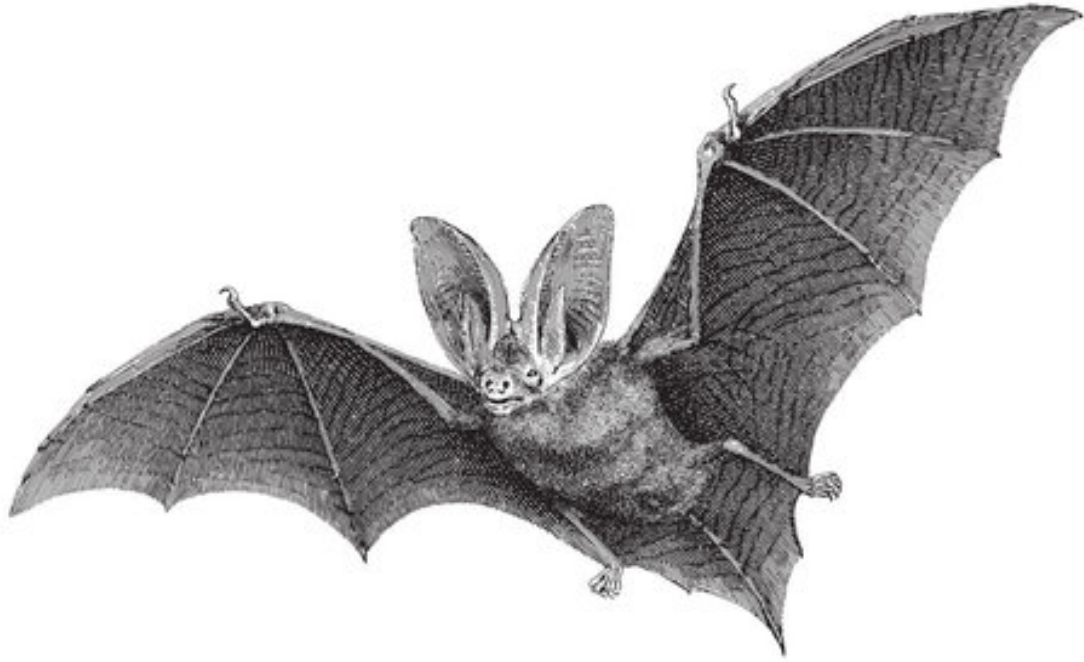
Students may write this answer on their sheet of paper or verbally tell the instructor as they leave:

What does the word echolocation mean?

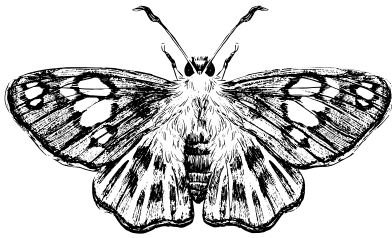
## SCIENTIST'S WORKSHEET

Tip: Can draw or write the following down on whiteboard!

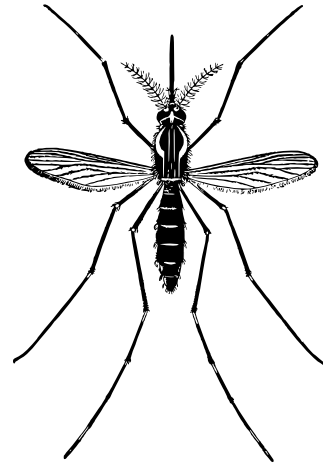
Hypothesis	Observation	Conclusion
How do you think bats are able to catch tiny and fast moving insects at night?	Can you think of an example of how humans might experience echolocation?	Was your hypothesis correct?



**BAT**



**MOTH**



**MOSQUITO**

