



LESSON: Batty About Bats

Episode: "Nighttime"

Franny lands in the middle of the dark woods, where she meets Barty, a young bat who is afraid of the dark. With Franny's help, Barty is able to overcome his fear and fly out of his cave into the moonlit night. In *Franny's Treasures*, Bobby and Franny help viewers identify nocturnal animals, such as raccoons, bats, and owls.

Grade
PreK - 2nd Grade

Subject
Life Science

National Standards
NS.K-4.1, NS.K-4.3

Approx. Times
65 - 90 minutes
(plus 15-20 minutes prep)

Learning Objectives/Skills

Children will:

- * **sort and classify animals as nocturnal or diurnal.**
- * **describe the characteristics needed to survive as a nocturnal animal.**
- * **compare and contrast their own senses to those of a bat.**
- * **observe the anatomy of a bat and describe the functions of each body part.**

Overview

A large percentage of animals are nocturnal, or mostly active at night. Nocturnal animals have many physical adaptations that allow them to survive with little or no light. These adaptations can include a highly developed sense of sight and hearing. Humans and other animals that lack these highly developed senses are diurnal, or mostly active during the day. Bats in particular have an extra sensory adaptation called echolocation that helps them to navigate and locate food.

They emit high-pitched sounds that bounce off nearby objects. Bats can use the echoes of the sounds to

determine the distance and direction of nearby objects. Contrary to popular belief, bats are not blind. Bats use all of their senses including echolocation to find and capture food.

In these activities, children will use pictures of animals to classify animals as nocturnal or diurnal and discuss the reasons why animals would prefer to be active at night. They will then participate in a role-playing game that will help them explore how a bat uses echolocation and the various senses needed to hunt at night. The children will also observe a picture of a bat and describe its body parts. They will create a "flapping bat" that they can use to mimic bats in flight.



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Materials

Classroom materials:

- Pictures of nocturnal animals
- Bat picture
- Toy squeaker
- Blindfold
- Stapler
- Crayons or markers
- Stapler
- Chalkboard or large piece of paper

Each child will need:

- Various pictures of animals
- Flapping bat template (photocopied on card stock)
- Craft stick
- Flashlight (optional)

Prep

Activity 1:

- Create a “Nocturnal and Diurnal” chart on the chalkboard or on a large piece of paper.
- For younger children, you can draw a picture of the sun or moon in the appropriate column.

Activity 2:

- Hide pictures of nocturnal animals around the room.
- Make sure to place some in less obvious areas.

Activity 3:

- Photocopy flapping bat template onto cart stock for each child.



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Introduction

1. Lead the children in a discussion about what happens at night. Use the following questions to frame your discussion:
 - *What do you do at night?*
 - *Do you think that everyone or everything goes to sleep at night?*
 - *Who or what might be up during the night?*
 - *Do you know another word for animals that stay awake at night?*
2. Introduce the word "nocturnal." (A nocturnal animal is mostly active during the nighttime.) Ask:
 - *Are we nocturnal? Do we stay up all night?*
3. Introduce the word "diurnal." Ask:
 - *Do you know a special word for animals that are mostly active during the day?*
 - *Do you think that most people are diurnal or nocturnal?*





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Activity 1 – Nocturnal or Diurnal?

1. Hand out various pictures of animals to each child. Ask the children to look at the pictures and think about which animals are awake at night (nocturnal).
2. Now ask the children to think about which of these animals would be awake during the daytime (diurnal).
3. Ask the children to sort the animal pictures into two piles, one pile representing animals that are nocturnal and one pile representing animals that are diurnal.
4. Review as a group whether each animal is nocturnal or diurnal by taping the pictures in their appropriate column on the chart.
5. Ask the following questions after the chart is completed:
 - *Why are some animals nocturnal?*
 - *What are the reasons that some animals might want to stay awake at night?*
6. Conclude by discussing the following reasons for nocturnal behavior:
 - *Some animals are nocturnal to avoid the heat from the sun.*
 - *Some animals are nocturnal to avoid predators.*
 - *Some animals are nocturnal to stalk prey.*





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Activity 2 – Special Senses

1. Lead the children in a discussion about the special abilities nocturnal animals might have that help them survive in the dark. Ask:
 - *Can you see in the dark?*
 - *What special abilities do you think nocturnal animals need at night?*
 - *Which one of your five senses do you think nocturnal animals need to use?*
2. Tell the children that they are going to hunt for nocturnal animals in the room. You may hand out flashlights for them to use as they search the room (especially for younger children who may be afraid of the dark).
3. Turn the lights off and ask the children to search around the room for the pictures of nocturnal animals that you have hidden around the room (depending on the darkness of your room, children may not be able to find all of the “animals”).
4. After a few minutes, turn the lights on and count how many animals, if any, were found.
5. Show the children the animals that were not found and ask them why they think those animals were not found.
 - *What was it like searching for animals in the dark?*
 - *Could you see the color, exact shape, or size of the objects or animals in the room?*
 - *Do you think nocturnal animals have a better ability to see at night than humans do?*
 - *Would animals use flashlights to see at night?*
6. Lead a discussion about what a nocturnal animal might need to help them find food. Ask:
 - *Which of its senses do you think a nocturnal animal would use to find food?*
 - *Do you think a nocturnal animal would use its eyes, ears, or nose to find food?*
 - *What do you think a bat would use to find food?*
7. Show a picture of a bat and point to its ears. Ask:
 - *How are the bat's ears different from your ears?*
 - *Why do you think a bat has ears shaped like that?*



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Activity 3 – Flapping Bats

1. Give each child a flapping bat template.
2. Ask the children to point out the different body parts and review their functions. Where possible, invite them to compare their own body parts to those of a bat.
 - Wings – even though a bat has wings, it is not a bird. Bats are mammals since they have live babies. They are also the only mammals that can fly.
 - Mouth – different types of bats eat different types of foods. Some bats eat fruit, nectar, insects, or fish. Only vampire bats drink tiny amounts of blood from other animals.
 - Nose - bats have a well-developed sense of smell. They use it to find food and their young.
 - Eyes – bats are not blind. They use their eyesight along with their other senses to help them find food and avoid obstacles.
 - Feet – bats use their strong claws to hang upside down when they are resting.
 - Fur – bats have fur on their bodies and use it for camouflage or to keep warm.
3. Assist the children in cutting out the bat template (pre-cut for younger children).
4. Invite them to color the body and wings of the bat on the front and back of the template.
5. Prompt the children to fold the wings down along the dotted lines on length of the bat's body so they will have two symmetrical folds.
6. Instruct them to place the craft stick in the fold as if they were placing a hot dog in a bun.
7. Instruct them to place the craft stick on the back of the body (as if they were placing a hot dog in a bun).
8. Help the children staple or glue the craft stick along the body of the bat, leaving a portion of the craft stick exposed on the tail end of the bat.
9. Holding the exposed portion of the craft stick, the children can now make their bats flap their wings by bouncing them up and down.
10. Go on a bat parade. Invite the children to "swoop" their flapping bat around the room. After the parade, use the flapping bat to play the game in Activity 4.



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Activity 4 – Be the Bat Game

(This role-playing game is suitable for 2 – 20 children)

1. Explain to the children that bats are very special because they use their sense of hearing to ascertain the shape, location, and proximity an object.
2. Tell the children that they are going to play a game in which they can pretend to be a bat. This game will show show them how a bat uses its sense of hearing to find prey.
3. Direct the children to stand in a circle.
4. Designate one child to be the "bat." Place him/her in the center of the circle of children and attach a blindfold. The designated "bat" should hold the flapping bat in his/her hand.
5. Show the children a squeaker and tell them that you will hand the squeaker to a child who will play the role of the "insect." Emphasize to the child acting as the "insect" that he/she must stand still and remain in the circle. Whenever the designated "insect" hears the "bat" say "beep," the "insect" must squeeze the squeaker once.
6. Through a series of beeps and squeaks the "bat" will have the opportunity to locate the "insect." The "bat" can use his/her flapping bat (from Activity 3) to tap the "insect," indicating that the "bat" has found its prey.
7. Invite the other children to take turns as the designated "bat" or "insect."
[Optional: For older children, you can line up "insects" in a zig-zag pattern and challenge the "bat" to walk blindfolded from one end of the line to the other without bumping into an "insect." Each "insect" should pass the squeaker down the line (or you can provide multiple squeakers). The "bat" should stop and wait to hear the squeak before taking a step.]
8. Explain to the children that the sound a bat makes bounces off objects in its path, creating echoes. Bats are able to use their strong sense of hearing to pick up echoes -- this helps them locate their insect prey. This process is called echolocation. Unlike the squeaker used, the sound a bat makes is so high-pitched that humans are not able to hear it.



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Science Extensions

1. Visit your local zoo and search for animals that are nocturnal. Circle the animals on the zoo map that are nocturnal.
2. Make a nighttime collage of nocturnal animals. Use a large piece of black construction paper as your night background and a circle of white construction paper as the moon.
3. Discuss the characteristics of different animal groups (mammals, reptiles, amphibians, fish, and birds). Invite the children to sort various animal pictures into their appropriate animal group. Discuss why a bat would belong in the mammal category.
4. There are over 1,000 different species of bats in different shapes, sizes, and colors. Show the children pictures of different species and discuss their differences and similarities.



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Literacy Connections

- ***Stellaluna***, by Jannell Cannon
- ***Bats***, by Gail Gibbons
- ***The Best Book of Nighttime Animals***, by Belinda Weber

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