



Grade Level

Kindergarten - 2nd Grade

Lesson Length

90-120 Minutes

STEM Careers

- Zoo Keeper
- Wildlife/Conservation Officer
- Animal Scientist
- Lab Technician

Life Skills

- Critical Thinking
- Decision Making

Related Activities

- Check out the <http://www.kidzone.ws/animals/bats/> for worksheets.

Learn More

- Visit Raising Nebraska raisingnebraska.unl.edu

Virtual Fun

- <http://pbskids.org/>

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ANIMALS OF THE NIGHT

Animal Science

This grab and go lesson will focus on nocturnal animals and provide examples of some.

LEARNING OBJECTIVES

By the end of the lesson, students should be able to:

- Define “nocturnal”
- Identify animals that are nocturnal

EDUCATIONAL STANDARDS SUPPORTED

- NE 2010 2.3.4.a Recognize seasonal changes in animals and plants
- NGSS 1-LS1-2 Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.

MATERIALS LIST

- Bright colored fabric or item of clothing (neon yellow or green is great)
- Black colored fabric or item of clothing
- Optional: Book about nocturnal animals (Potential books listed in the lesson)
- Pictures of nocturnal animals (ideally about ¼ sheet of 8.5” x 11” in size for each animal) These will be used to hide around your room
- Optional: mini flashlights or one flashlight for the teacher
- Bat template (end of lesson) copied on white cardstock
- Crayons or Markers (especially black or brown)
- Scissors
- Blindfold
- Animal Investigation Sheet (end of lesson)
- Optional: black felt or pompoms, googly eyes & glue

PREPARATION

- Hide pictures of nocturnal animals around the room with some in less obvious areas



INTRODUCTION

Nocturnal Animals

There is a large percentage of animals that are nocturnal, or active at night due to advantages that activity at night allows. It is fascinating how these animals survive with little or no light. Some advantages nocturnal animals have over diurnal (active during the day) animals include: reduced competition for food, water, shelter and space, avoid the heat of the day and water loss by being active at night when it is cooler and to avoid predators that are diurnal.

How are nocturnal animals able to function in the dark? Many nocturnal animals have adaptations for better night vision, and the other senses are much more developed in nocturnal animals than in diurnal animals. For example, they use their hearing, smelling, tasting, touching, and vision to navigate through the night. Some species also have extra sensory adaptations such as echolocation in bats and heat-sensing pits in pythons.

What appears as pitch black to a human may be dim light to a nocturnal animal. The reason lies in the structure of the eye itself. Nocturnal animals tend to have proportionally bigger eyes than humans. They also tend to have pupils that open more widely in low light. So, at the outset, nocturnal eyes gather more light than human eyes do. Some nocturnal animals such as bats have special eye cells called rods. These rods help them capture more light when it is dark.

OPENING QUESTIONS

- What do you do during the day? At night?
- Why do some people work at night instead of during the day?
- Do you think all animals are awake during the day and sleep at night? Why or why not?

Today you are going to be a zoo keeper and explore what animals are mostly active at night so you can take care of them well. Let's get started... what plants need in order to survive. You will also be deciding if gravity impacts a plant's growth. Let's get started.....

Key Concepts

Nocturnal animals use their senses to function at night. These include:

- Hearing
- Sense of smell
- Vision
- Sensory receptors
- Tasting
- Touching

Possible Books

- The Bernstein Bears Scouts in Giant Bat Caves by Stan and Jan Bernstein
- Out of Sight Till Tonight: All About Nocturnal Animals by Tish Rabe
- Where are the Night Animals by Mary Ann Fraser
- Hoot by Jane Hissey

Vocabulary

Nocturnal animal- an animal that is most active during the night

Diurnal animal – an animal that is most active during the daylight

Adaptation – a special feature or characteristic possessed by a living thing that helps it survive in its environment

ACTIVITY 1: WHAT ANIMALS DO YOU SEE

Ask students about their daily/nightly routine. Follow-up by asking if it is easier to play games with their friends outside during the day or night.

If they ride a bike or walk outside, why is it recommended to wear bright clothing or a reflector? Hold up brightly colored fabric.

If you were wearing clothing in this color (hold up black fabric) at night, would people be able to see you as well?

If you were trying to hide from others at night time, what else would you do to blend in?

Wear black cap, paint face black, etc.

What animals live around us?

Cat, dog, fox, owls, bats, mice, insects, spiders, snakes, horses, deer, birds, coyotes, skunks, raccoons, opossums, etc.

Which animals do you see/hear active during the day?

Make a list; write it on a board or paper.

Which animals do you see/hear active during the night?

Make a list; write it on a board or paper.

Why do you think you usually see some animals during the day and some during night?

Nocturnal vs. diurnal

Read one of the suggested books or a book of your choosing on nocturnal animals. Before beginning, tell youth that the book will talk about different nocturnal animals and they should see if they can figure out what it means to be a nocturnal animal.

Ask youth for similar characteristics of nocturnal animals in the book. (active during night, bigger eyes which help with night vision, communicate with sounds, etc.)

Facts

Some animals are impacted by the period of time during the day when there is sunlight (photoperiod). These animals are called seasonal breeders. Animals in the wild have a breeding season that is initiated at a time when the environment will allow for the best survival of the young.

Discuss

Nocturnal Animals-

Mole, owl, badger, bat, toad, mouse, hamster, cat, hedgehog, red fox, coyote, cricket, firefly, lion, white-tailed deer

Diurnal Animals-

Most birds, cows, humans, river otters, squirrels.

Extension

Using a black sheet of paper, have youth create a collage of nocturnal animals. You can cut out the moon using white paper.

ACTIVITY 2: THE HUNT

We will practice being nocturnal animals by searching for some animals I have hidden around the room.

I have pictures of animals hidden around the room. Let's see if we can search for them. (if needed, the flashlights can be used)

After a couple of minutes, turn on the lights and count how many animals were found.

Have each youth hold up the animal he/she found. Did it surprise them that animal is nocturnal? Why or why not?

- What was it like searching for animals in the dark?
- Were you able to see the exact, color, shape or size of the animal?
- Would nocturnal animals be able to see at night better than humans?
- Would animals use a flashlight?
- What senses do nocturnal animals use to find food?

ACTIVITY 3: BEEPER THE BAT

Bats are one example of nocturnal animals. They are special for several reasons. They use their sense of hearing to determine the shape, location and closeness of an object. Even though bats have wings, they are mammals since they give birth to live babies. They use echolocation to find and capture food which means they emit high-pitched sounds that bounce off nearby objects. We are going to examine how a bat uses their special senses to capture food at night.

First, you will cut out your own bat. If youth are able, have them cut out their own bats.

Discuss the parts of the bat's body and if possible relate this to our own bodies.

- Wings – only mammal that can fly, they are a mammal because they give birth to live babies
- Mouth – eat many different kinds of food depending on the type of bat; some eat fruit, insects or fish in fact only vampire bats drink small amounts of blood from other animals
- Nose – they have a well-developed sense of smell and use it to find food and their young
- Eyes – used along with other senses to find food and avoid obstacles
- Feet – they have strong claws and use them to hang upside down when resting
- Fur- they have fur to use as camouflage or to keep warm

Children should color their bats. You can tell youth there are over 1,000 different species of bats so they can all look a little different.

Did You Know?

Bats are helpful to us because one bat alone can eat more than 1,000 mosquitoes in an hour.

Extension

Determine how an animal reacts to a solar eclipse. One place to get started is by checking out <https://www.eclipse-chasers.com>

Facts

- Some people think bats are blind, but they are not!
- There are over 1,000 different species of bats in different shapes, sizes and colors.

Vocabulary

Echolocation -

finding an object by determining the time for an echo to return and the direction from which it returns

Optional: Glue some of the felt and black pompoms to the body of the bat. Glue googly eyes on the bats eyes.

Play the game!

1. Have youth stand in a circle.
2. Using a bat's echolocation, the objective of the game is for the "bat" to catch an "insect".
3. One child will be in the circle as the "bat" (and blindfolded) and the other will be the "insect".
4. All other children surrounding the bat are the "cave" or structure the bat lives in and should be quiet.
5. The "insect" will stand in the circle and must stay in that place the whole time.
6. The "bat" will then say, "beep" to find the insect.
7. Every time the "bat" says "beep", the insect must say, "beep beep".
8. Once the "bat" finds the "insect", it can touch the insect with its bat (from the previous activity) indicating it ate the insect.

This game can be played as often as time allows.



REFLECT

Let's review what we have learned...

What do you do during the day? At night?

Why do some people work at night instead of during the day?

What are examples of nocturnal animals?

- Mole, owl, badger, bat, toad, mouse, hamster, cat, hedgehog, red fox, coyote, cricket, firefly, lion, white-tailed deer

What are examples of diurnal animals?

- Most birds, cows, humans, river otters, squirrels,

What senses do nocturnal animals use to find food?

- Hearing, sense of smell, vision, sensory receptors, tasting, touching

What special sense do bats use to locate food?

- Echolocation

Draw/write down what you have learned about nocturnal animals on your animal investigation sheet.

Facts

- Some bat species eat insects and consume up to their weight in food each night.
- A colony of bats can literally eat tons of insects every night. Bats also consume insects that damage crops.
- Bats live in a variety of places such as under tree bark, caves, tree cavities, hollow trees, abandoned mines and crevices under bridges.
- Bats are food for owls, hawks, falcons, opossums and raccoons.

Facts

Bats are creatures of habit and will return to the same roost for many years.



APPLY

Now that you have successfully identified what nocturnal and diurnal animals are, you are on track to being a great zookeeper or even an animal scientist – someone who studies animals.

What are key reasons some animals are nocturnal?

- Some advantages nocturnal animals have over diurnal (active during the day) animals include: reduced competition for food, water, shelter and space, avoid the heat of the day and water loss by being active at night when it is cooler and to avoid predators that are diurnal.

How are nocturnal animals able to function in the dark?

- Many nocturnal animals have adaptations for better night vision, and the other senses are much more developed in nocturnal animals than in diurnal animals. For example, they use their hearing, smelling, tasting, touching, and vision to navigate through the night. Some species also have extra sensory adaptations such as echolocation in bats and heat-sensing pits in pythons

What are some examples that might limit the amount of sunlight an animal will receive?

- Total Eclipse, even just for a short amount of time; Length of sunlight in a day, in summer there are more hours of sunlight, etc.

What types of tasks would a zookeeper do?

- Take care of the animals (feed, water, clean pens), study their behavior, care for overall well-being

What are other careers that relate to animals other than what we have discussed?

- Animal breeder, geneticist, animal scientists, nutritionist, researcher, veterinarian, etc.

References

“Diurnal.” Animal Sciences. . Retrieved May 10, 2017 from Encyclopedia.com: <http://www.encyclopedia.com/science/news-wires-white-papers-and-books/diurnal>

<http://agrilife.org/batsinschools/about-bats/>

We want to hear from you!

Let us know what you thought of the lesson or send us a picture of youth participating in the lesson.

#NE4HSTEM

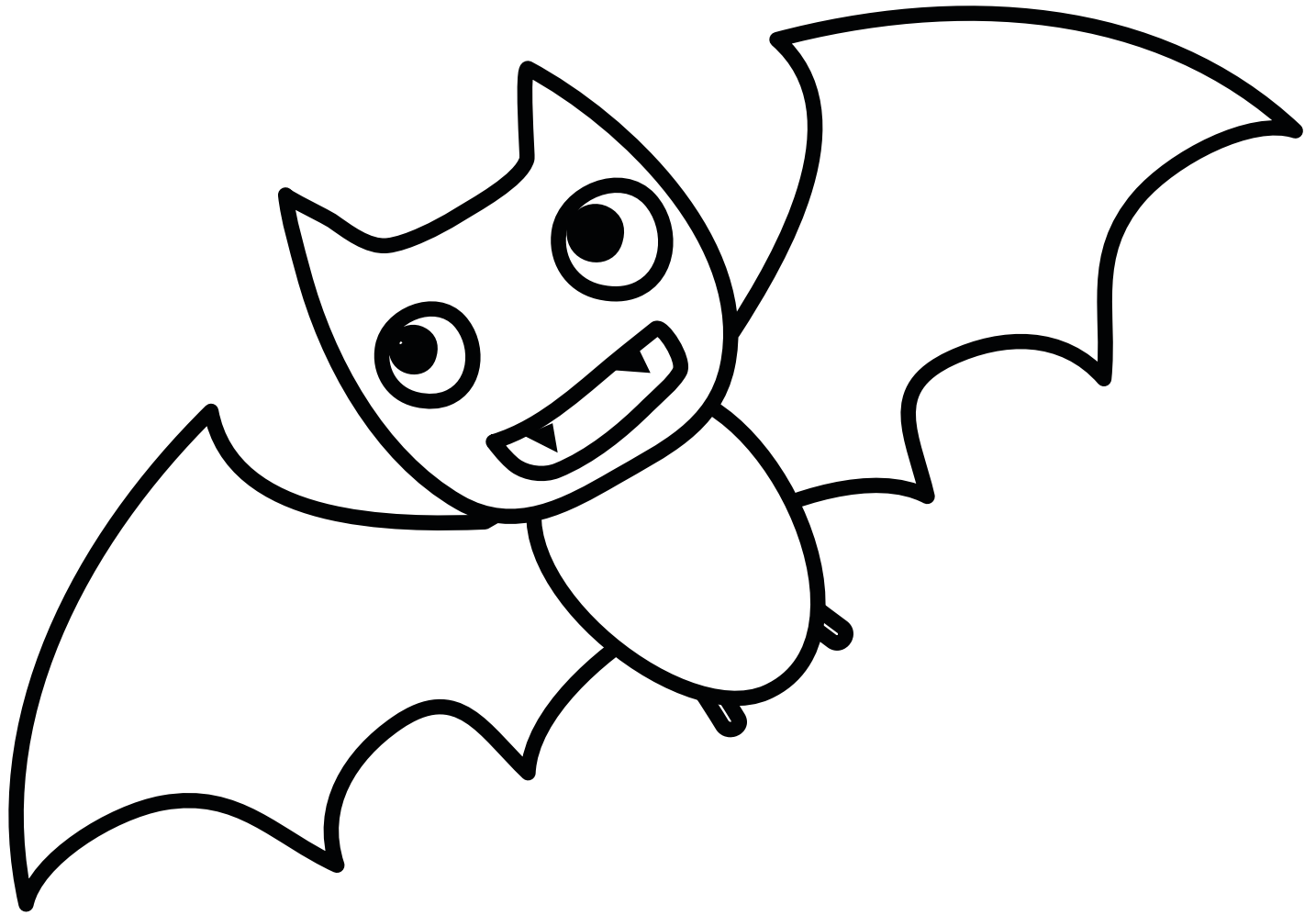
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BAT TEMPLATE

Animals of the Night

NAME

DATE



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