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Lesson 1: Bat Basics

Theme
Bats aren't as scary as you think. In fact, they're very important members of the ecosystem!

Learning Objectives
In this lesson, students will learn about the cultural connotations surrounding bats, and will bust some bat myths. Students will also learn about the basics of bat natural history, anatomy, and ecosystem services.

Corresponding Activities for this Lesson
- Bat & Moth Echolocation Game
- Bat Origami
- How Do I Compare to a Bat?
- Calculate the Value of Bats

Materials
- Lesson 1 PowerPoint
- Bat skull model
- Slinky
- Bat myth cards
- Bat silhouettes

Lesson
1. Start by asking the class how people feel about bats. As the students provide answers, write them on the board.
- Some of the answers may raise some questions. For example, many people associate bats with Halloween and vampires, which might raise the question, "Do bats want to drink your blood?" On another section of the board, write down the students' questions as they come up.
- Once the class is satisfied with the list they have created, click through the slide with the collage of pictures to review and illustrate the students' ideas. *We have provided corresponding information for each image in the notes section of the PowerPoint. You can choose to reveal some of the information to the students now or during the next parts of the lesson. You could also use the Bat Myth Cards instead.*

2. Ask students to participate in taking some guesses at the bat trivia questions and bust some bat myths. The answers to the trivia questions are included in the notes section of the PowerPoint. *Use the slinky to demonstrate how echolocation works (when busting the "blind as a bat" myth). Ask one student to be a bat and one to be a bug, standing on either end of a stretched out slinky. The bat taps the slinky, and then senses the "waves" bounce through the slinky to the bug and back!*

- Are bats blind?
- Do bats suck blood?
- How many insects can a bat eat in one night?
- Can bats carry rabies?

3. Take a look at the next slide to review some basic information about bat natural history and anatomy.

- Explain to students that bats are not rodents, but are in their own order of mammals called Chiroptera.This is a good time to show students the bat skull. Bats don't have large front teeth like rodents, but instead have lots of small, sharp teeth.
- Chiroptera means "hand-wing" in Latin, one of the languages used for scientific categorization. This makes sense, because a bat's wings are actually its hands! Take a few minutes to allow students to look at the color coded illustration of the arm and hand bones of a human compared to a bat. Ask if they can spot similarities between the two. Explain that humans and bats are both mammals, which means we have many of the same bodily structures, but have adapted to do different things. Bats use their hands to fly and scoop up insects, while humans use their hands to hold things, write, build, etc.

4. Review the next set of bat trivia questions, asking students to guess the answers. The answers to the trivia questions are included in the notes section of the PowerPoint.

- How many species of bats are there worldwide?
    - *For this question, ask students if they can figure out what the colors might mean on the map of the world. Ask if they can figure out where in the world the number of bat species is the highest.*
- How many species of bats are there in Rhode Island?
- How long can bats live?
- After reviewing the trivia questions, ask for a few volunteers to help hold up the fabric bat silhouettes to illustrate the size diversity of bats across the world. *Fabric silhouettes are provided in the hands-on kit. If you are accessing this kit online, templates for the bat silhouettes are available in the Lesson 1 section.*
    - The largest bat silhouette represents the flying fox. There are multiple species of flying foxes found across southeast Asia, east Africa, Australia, and other islands in the Indian and Pacific Oceans. The golden-crowned flying fox of the Philippines can have a wingspan up to 6 feet wide!
    - The smallest bat silhouette represents the bumblebee bat, which lives in Thailand. This is the smallest bat species in the world.
    - The medium-sized silhouette represents the big brown bat, which is the most common bat species found in Rhode Island.

5. Ask students why they might think bats are important to people and the ecosystem.

- Bats are incredibly important worldwide for insect control, pollination, and seed dispersal. Explain to students that bats provide these ecosystem services to humans for free, so it is important that we care for our bat populations. *Information about each ecosystem service can be found in the notes section of the PowerPoint.*