



Nature-Watch Activity Kit

Create-a-Bat

(Nature Watch Kit #126)

Kit Contents

Kit Size

25 100

Item:

Foam Bats	25	100
Dowels	25	100
Black Chenille Stems	25	100
Wiggle Eyes	50	200
Magnets	25	100
Thread Spools	2	8
Velcro Loops and Dots	25	100
Instructor Manual	1	1
Foam Bats	25	100

This page includes the Next Generation Science Standards (NGSS) mapping for this kit and Science, Technology, Engineering, and Math (STEM) extensions (on back) to use in adapting and extending this activity to other subject areas.

Next Generation Science Standards Alignment

2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.

3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

MS-LS1-4. Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristics animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.

MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

**See Back for
STEM Extensions**

This Nature Watch Activity Kit contains an Instructor Manual and materials to implement the curriculum. The kit was designed to be used with adult supervision only. Unsupervised use is not recommended.



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STEM Extensions

Science

Draw and cut out pictures of several bat species. Tape them to a large world map in the geographic regions where they live. Then draw pictures of the bats' habitats and add them to the map.

A few bat species in the United States are on the endangered species list. Go online to find out what is affecting their populations. How can humans support conservation of these species so they can come off the endangered species list?

Bats and birds are in different divisions of the animal kingdom, yet people often think of them together since they both fly. Make a Venn diagram that shows what bats and birds have in common and how they are different.

Technology

People have created some useful devices that use the same principles as bats' echolocation abilities. These ultrasonic sensors are used, for example, to visualize a fetus growing in a mother's womb, to determine wind speed and direction, and in radar and sonar navigation. Research ultrasonic sensors used by people to see how they compare to bats' echolocation and how they are helpful to people.

Go online to watch a bat cam – a real-time video feed that gives you a close-up view of live bats. Watch the bats and take note of interesting behaviors. How are they similar to other animals you are familiar with? What kinds of social behaviors do you observe? How active are they? Make observations, then discuss them with your classmates to compare notes.

Engineering

Build a wooden bat house that would be appropriate for the types of bats living in your region. Think about what bats would prefer: they like warm, tightly enclosed spaces and would feel safer being away from predators. There are some bat house plans and tips available online if you'd like to get some ideas.

The idea of imitating nature, like the ultrasonic sensors do, is called biomimicry. Come up with a new invention that is inspired by the structure and function of bats. Describe how it would help people and draw a sketch of how it would look.

Math

Use the information on page 1 to figure out this challenge: If a certain species of megabat migrates 1000 miles, traveling 80 kilometers each night, how long does it take the bat to arrive at its destination? How many times does the bat beat its wings during its migration travel?

Using the diagram on page 4, measure the angles between the bat's fingers. Then, ask your classmate to spread a hand out on the table and measure the angles between your classmate's fingers. How do the angles compare?