Batty About Bats

An experience with bats in the wild led this elementary teacher to develop a literature-based unit for her students.

by Elizabeth Grenke

As a teacher of primary students, each fall when Halloween rolled around, I would find myself pulling out bat-shaped patterns from my file. My students and I would talk a bit about the creatures, type of habitats they live in, anatomy, and what they eat. Then we’d usually move on to another project the next day. We'd always touch the surface, but never swoop into a more detailed study this fascinating animal.

This changed completely after I participated in the Educators' Science and Mathematics Institute Series (ESMIS) at Michigan Technological University (see related article on page XX). With backpacks and boots, a group of 20 educators of various grade levels and subject areas spent a week on the North and South Manitou Islands in the Sleeping Bear Sand Dunes National park. The week was filled with inquiry-based learning experiences, with the hope our sense of wonder would transfer to our students when we returned to our classrooms.

My most exciting experience occurred during some dark hours I spent with two graduate students from Eastern Michigan University. They were mist-netting bats in hopes of learning which species inhabit or migrate through the islands. The night brought three red bats to the nets.

It was a thrilling evening for an elementary teacher. This was the first time I was able to truly examine a bat. I had only observed them behind glass in a zoo. The experience encouraged me to create a unit in which my primary-aged students could learn about bats in an exciting and multisensory way.

I built the unit around five pieces of literature geared for young children. Although all books tend to overlap with similar information on bats, each presents the information in a different form.

**Introduction Activity: Stellaluna**

*Stellaluna*, written and illustrated by Janell Cannon, is one of the most beautiful science-based picture books I have come across as a teacher. Students fall into it. While relating to a wonderful story, they learn without even realizing learning is taking place. The book is about a young bat that is separated from its mother and raised in a nest full of fledgling birds. Later, the bat finds its true being.

The story may be used at many levels. For my students, who are five and six years of age, it serves as an introduction to the bat unit and encourages language development for the concepts of same and different. Students are encouraged to compare birds with bats using their own words.

Together we make two lists. What do we know about birds? What do we know about
bats? Each list is written in a different color. Pictures can be drawn as aides to the words for young students.

Next, students are invited to come up and circle things from both lists that are the same using a similar color crayon or marker. A Venn diagram format would also work extremely well in this exercise.

*Stellaluna* creates an excellent opportunity for sensory-motor activities and special movement. Ask:

  - Show me what your pointer finger (or body) looks like when it is straight up.
  - What would it look like if it were upside down?
  - How would a bat move flying at nights through lots of trees?
  - How would most birds look if they had to fly at night in the dark? (This can lead to a good discussion that a nocturnal owl can fly well at night.)

**Activity Two: Hearing and Echolocation**

*Zipping, Zapping, Bats*, written by Ann Earle and illustrated by Henry Cole, brings students a clear explanation of how bats use echolocation to make them good hunters (predators). *Batty Science*, an activity kit by Pace Products available through Scholastic Books, gives good examples of echolocation for students to try. Here are a few ideas:

  - Give every student a small whistle and ask them to blow it gently while noticing what they hear. Then, ask the students to blow the whistle in the same way, while cupping their ears forward with their hands. Discuss which time they could hear better and why. Older students could discuss the relationship between surface area and sound waves. For my young students, I found pictures of bats with ears twice as big as their head so the children could understand our experiment conclusion.

  - Discuss how bats make squeaking noises. If something gets in the way of these sounds, the sound bounces off and comes back to the bat. Have students hold a book far out from their face and make some squeaking sounds of their own. Then, have students slowly move the book closer to their mouths. Discuss the difference in the sound as their voice sounds bounce off the book and echo back to their ears.

  - I have seen a third activity in a variety of publications. I believe it initially comes from Project Wild. Students stand in a circle. The “bat” is given a film container containing a few beans and is blindfolded in the middle of the circle. Another student standing on the outside of the circle is also given a shaker. As the bat shakes the container, the circle member waits a few quiet seconds then shakes back to simulate sound waves bouncing back. Then, the bat tries to find its prey.

**Activity Three: The Hand-Wing**

Chapter One of Joanna Cole’s *The Magic School Bus Bat Fact Finder* “What makes a bat a bat?” gives excellent diagrams of a bat's anatomy. It also gives strong examples of the difference between a bat and a bird, making it a good follow-up to *Stellaluna*.

For my students, the more hands-on and active they can be, the more understanding they gain. The following activity gives students the feeling of what it would be like to have a hand-wing.
Students look at diagrams of the anatomy of a bat and compare and contrast their own structure to that of a bat. Ask:

This is a bat's upper arm. Where is your upper arm?
This is a bat's elbow. Where is your elbow?
This is a bat's thumb. Where is your thumb? (The same can be done for the first through fourth fingers. Have students verbalize the difference. What does a bat have that we don't have?)

Next introduce the concept of the bat's wing membrane. Using plastic-wrap, help students wrap their own hands, excluding the thumb, since that is a gripper for a bat. Students can then experience what it feels like for fingers to be connected with wing membrane. Suggest students stretch their fingers out as far as they can and move their hands through the air.

**Activity Four: Bat Myths**
Continuing with the *Magic School Bus Bat Fact Finder*, help students take apart bat myths. This can be done in a number of ways. A myth might be presented to the class with students giving thumbs up or thumbs down for yes or no. After they give reasons for their answers, information from the book is shared.

Another way to get to student thinking is by designating a yes, no, or I'm not sure section of the classroom. (Corners would work well.) With each new myth, students have to move themselves into place. In short, they “take a stand.” This could lead to positive discussion on making up one's own mind, instead of simply following where others go.

Myths addressed in Chapter 7 include:
- Bats nest in human hair.
- Bats are blind.
- All bats have rabies.
- Vampire bats suck blood out of people.

**Activity Five: So many bats!**
*Bats,* complied by Carolyn MacLuchich for the Australian Museum, is a wonderful wrap-up book. Full of color photographs of many different species of bat, the book reviews topics already presented. The pictures are excellent, and viewing them together offers a good opportunity for students to discuss what they have learned.

**Extension Activities**
Here are a few activities to be used throughout the unit and for closure and assessment.

Each day have students tell a neighbor one bat fact they've learned.
Students can draw a picture of the species of bat they find most interesting.
Encourage them to draw that bat's habitat as well.
Ask students to image becoming a bat for one night then tell or write a story about what it was like.
Create a class Bat Rap. Here is what we came up with:
- Bats are cool,
- Bats have wings,
Bats are flying living things!
Hey everybody, do the bat rap (EEK! EEK!)
Bat signs are considered good luck in China. Show children how to create bat symbol art using symmetry with cut and fold. (See an example on page 21 of *Zipping, Zapping, Bats.*

Make the classroom entrance into bat cave. Hang bat cutouts or stuff black stockings and add construction paper wings, eyes, ears, and fangs. Hang upside-down.

*Bats on Parade* by Kathy Appelt is a fun math read-aloud that uses bats as the main counting characters. Bat story problems can also be included at math time.

The bat activities in this unit meet many goals of the Michigan Curriculum Framework. Students gain an understanding of bats and their ecosystems through exploring scientific knowledge in the Life Sciences. A take-off unit on caves and their makings would connect Earth Science nicely. Students observe and construct scientific knowledge by generating questions about the world around them with bats as the centerpiece. Students interpret pictures and text that represent scientific knowledge, and they apply their own prior knowledge and reasoning to what is presented to them. This unit also connects science with various other content areas, including the arts.

So much more can be done with the books and ideas presented here. Although these activities are geared for younger children, I would encourage teachers of all levels to adapt the unit for their own students.

**References**

*Batty Science.* (1999). Anoka, FL: Pace Products. Item #99503


