Mama Bat Baby Bat

SUBJECTS: Science & English, Language Arts & Reading

GRADES: K-2

ACTIVITY SUMMARY: Students will simulate the way a mother bat locates her baby bat when she returns to the nursery.

DURATION: approximately 25-30 minutes (read story prior to activity)

OBJECTIVES:

Students will be able to:

1. Explain how mother bats are able to locate their babies.
2. Sort themselves into groups based on similar sounds.
3. Pair up with the partner who has the same sound and smell.

TEKS ADDRESSED:

Kindergarten-Science

1A-identify and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately.
4B-use senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment.
9B-examine evidence that living organisms have basic needs such as food, water, and shelter for animals and air, water, nutrients, sunlight, and space for plants.

1st grade-Science

1A-identify and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately.
5A-classify objects by observable properties of the materials from which they are made such as larger and smaller, heavier and lighter, shape, color, and texture.
9B-analyze and record examples of interdependence found in various situations such as terrariums and aquariums or pet and caregiver.
9C-gather evidence of interdependence among living organisms such as energy transfer through food chains and animals using plants for shelter.
10A-investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats.

2nd grade-Science

1A-identify and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately.
9C-compare and give examples of the ways living organisms depend on each other and on their environments such as food chains within a garden park, beach, lake, and wooded area.
10A-observe, record, and compare how the physical characteristics and behaviors of animals help them meet their basic needs such as fins help fish move and balance in the water.

Kindergarten-English, Language Arts, and Reading

4B—ask and respond to questions about texts read aloud.

1st grade-English, Language Arts, and Reading

4C—establish purpose for reading selected texts.

2nd grade-English. Language Arts, and Reading

3C—establish purpose for reading selected texts.

NATIONAL SCIENCE STANDARDS:

Content Standard C: Life Science

Grades K-4

The Characteristics of Organisms

- The behavior of individual organisms is influenced by internal cues (such as hunger) and by external cues (such as a change in the environment). Humans and other organisms have senses that help them detect internal and external cues.

Organisms and Their Environment

- An organism's patterns of behavior are related to the nature of that organism's environment, including the kinds and numbers of other organisms present, the availability of food and resources, and the physical characteristics of the environment. When the environment changes, some plants and animals survive and reproduce, and others die or move to new locations.

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BACKGROUND:

Baby bats are called pups. Female bats of the same species gather in nursery colonies to give birth to and raise their pups. Colonies often gather in caves. Natural Bridge Caverns used to be home to a very large colony of Mexican Free-tail bats. This and many other species of bats usually have only one pup a year. Pups usually develop quickly, taking only 6-9 weeks to become adult bats. They usually fly for the first time when they are 3-4 weeks old. Mothers must feed throughout the rearing period but cannot hunt efficiently while carrying their young, so the pups are often left on their own in the nursery roosts for several hours each day. When the mother returns to the nursery roost, she must find her baby among all the others. Approximately 300 Mexican free-tail pups can fit on one square foot of cave space. The mother is guided by a general memory of the area where she left her baby and by the baby's scent and distinctive clicking sounds.

MATERIALS REQUIRED:

For a class of 20: 20 film canisters, square cotton pads, different flavored extracts, objects that will make different noises in the film canisters (for example: pebbles, jingle bells, large marble, sand, etc.)

**Each student will need a film canister. The numbers and setup can be easily be adjusted to meet the needs of your class. If you have an odd number of students, the teacher or a parent volunteer can participate.*

PROCEDURE:

Steps 1 and 2 should be done before the students arrive.

1. Label the film canisters 1-20.
2. Drip a small amount of extract on a small square cotton pad before placing it in the canister and then add objects to make noise when the canister is shaken. The table below shows one possible scenario for setting up the canisters and matching pairs. Different objects, scents, and combinations can be used depending on the resources available to you. Be sure to let the canisters air out for a while so the extract scent is not quite so overwhelming.

Canister #	Scent	Object	Canister #	Scent	Object
1	Vanilla	Jingle bell	11	Cinnamon	Small paper clips
2	Strawberry	Jingle bell	12	Strawberry	1 rock
3	Banana	Small paper clips	13	Cinnamon	Jingle bell
4	Vanilla	Small paper clips	14	Strawberry	Small paper clips
5	Banana	1 rock	15	Cinnamon	1 rock
6	Cinnamon	1 rock	16	Banana	1 rock
7	Strawberry	Small paper clips	17	Vanilla	Small paper clips
8	Cinnamon	Jingle bell	18	Banana	Small paper clips
9	Strawberry	1 rock	19	Strawberry	Jingle bell
10	Cinnamon	Small paper clips	20	Vanilla	Jingle bell

Matching Pairs

Canister #	Matching #
1	20
2	19
3	18
4	17
5	16
6	15
7	14
8	13
9	12
10	11

Procedure Cont.

3. Review the story *Stellaluna* by Janell Cannon.
4. Discuss with students how Stellaluna's mother was able to positively identify her daughter.
5. Have students try and think of other ways a mother can identify her child. Younger students can brain-storm as a class. Older students can brainstorm and write their ideas on chart paper.
6. Give each child a canister. The goal is for each student to find their partner with the matching sound and scent. Students will go around the room shaking the canisters and try to find the matching sound. Since the sounds are being used more than once, the students will be able to identify their partner for sure by opening the canister and matching the smell. (Younger students may benefit from dividing up into groups based on sound first and then search for their partner from within that smaller group.)
7. Once all students have found their partner, discuss how this activity is similar to the ways a mother bat uses to find her baby. Why is it so important for a mother bat to be able to find her baby bat?

ASSESSMENT:
Students can be evaluated based on their interaction with other students and their participation in the class discussions.

EXTENSION:
Students can try to identify the different scents in the canisters.