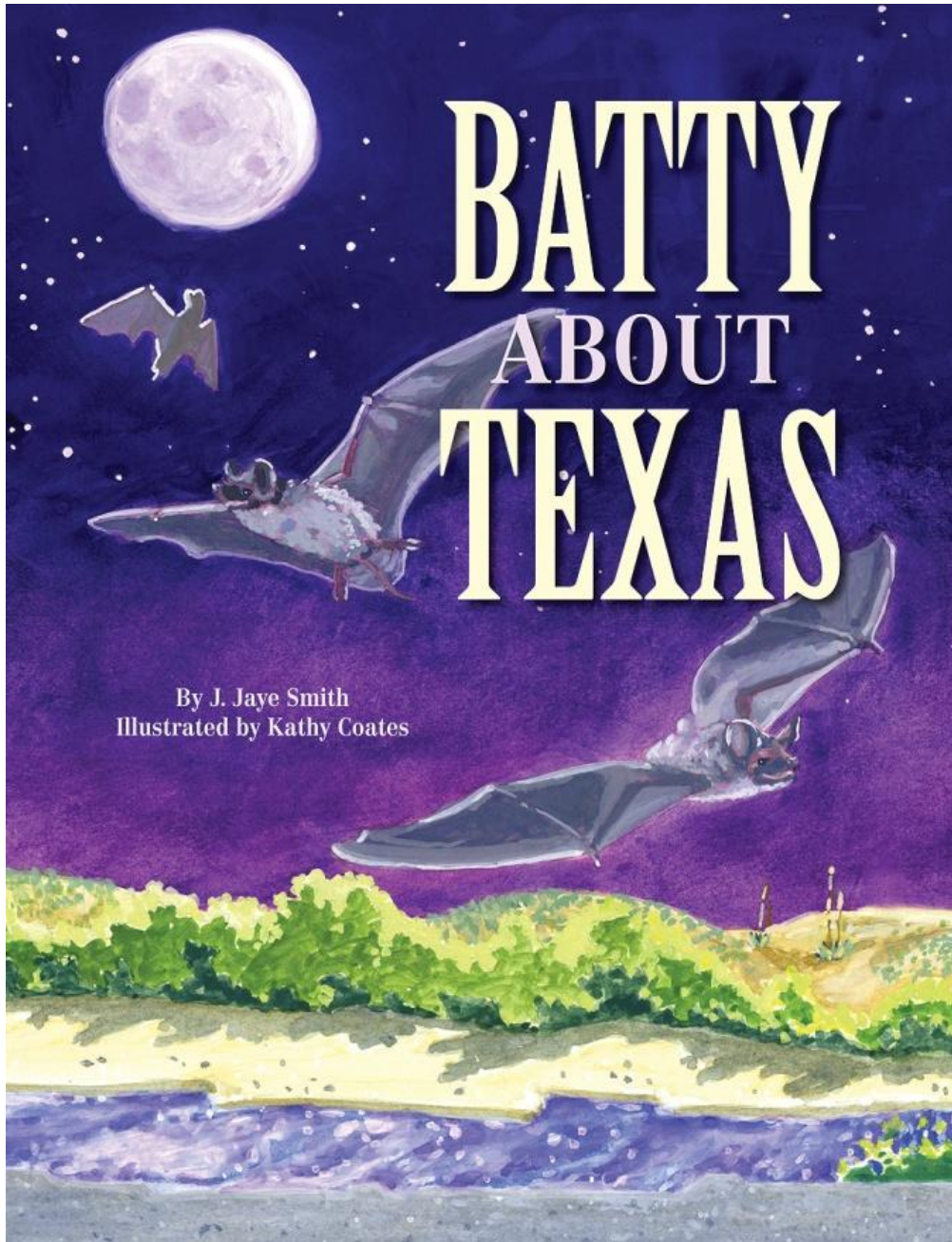


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Classroom Guide for



By J. Jaye Smith
Illustrated by Kathy Coates

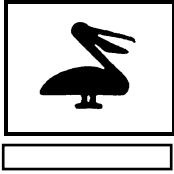
Batty About Texas

By J. Jaye Smith, Illustrated by Kathy Coates

The guide contains discussion questions, vocabulary words, and activities to tie the book to different areas of the curriculum, including Science, Social Studies, Language Arts, Math, and Geography.

Guide
created by
J. Jaye Smith

**Reproducible
Worksheets**



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Science Connections

Grades K-1

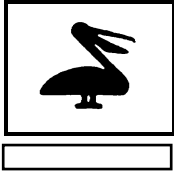
- ✿ Explain that all living organisms have basic needs, like food, water, light, air, a way to dispose of waste, and an environment in which to live. Identify the basic needs of the Mexican free-tailed bat. Discuss their natural shelters (like caves) but also explore how they have utilized man-made structures to meet their needs in urban environments (examples: bridges and railroad tunnels).
- ✿ Identify some characteristics of living organisms that allow their basic needs to be met. The ability to fly, a unique "hand wing" skeletal structure, and the echolocation ability are a few obvious examples to use for the bat.
- ✿ Compare and give examples of the ways that living organisms depend on each other for food (example: Mexican free-tailed bats eat flying insects).
- ✿ Identify the ways that the earth can provide resources for life.
- ✿ Explain the concept of day and night. Identify animals that are diurnal and nocturnal.
- ✿ Provide the students with a drawing of the bat's skeleton. Have students label major body parts (examples: head, wing, tail, etc...).

Grades 2-3

- ✿ Review the K-1 concepts.
- ✿ Classify the bat and other living organisms based on their properties and patterns (examples: bats are mammals, nocturnal, social, etc...).
- ✿ Observe and identify animals with similar needs that compete with one another for resources such as oxygen, water, food, or space. Observe how the bats' unique characteristics (flying and echolocation) have allowed them to survive in their environment.
- ✿ Discuss other animals that compete with the Mexican free-tailed bat for flying insects. Using examples (such as spiders and frogs), analyze what unique characteristics these animals possess that allows them to survive in the same environment.
- ✿ Describe environmental changes in which the bat (and other living organisms) would thrive, become ill, or perish.
- ✿ Provide students with drawings of animal skeletons of a bat and a human. Have students label major body parts. Compare/contrast findings and discuss.

Grades 4-5

- ✿ Review K-3 concepts.
- ✿ Explore the Mexican free-tailed bat's niche within an ecosystem. Discuss what would happen if the bats were not present within that ecosystem. Analyze how the bat's disappearance would negatively impact the economy in terms of negative agricultural consequences.
- ✿ Analyze and describe adaptive characteristics that result in the bat's unique ability to survive within that ecosystem. (This is partially a review of the K-3 discussions.)
- ✿ Identify a species from the past and compare it to the Mexican free-tailed bat (perhaps a pterodactyl). Note: It is believed that bats descend from arboreal tree dwellers.
- ✿ Provide the students with drawings of animal skeletons of a bat, dog, human, and bird. Have the students label the major body parts of each. Compare/contrast findings and discuss.



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Social Studies Connections

Grades K-3

- ✦ Describe how Texas's unique bat population has influenced the customs and traditions of its people. (Austin examples: The city has named its hockey team after the bats, a sculpture was placed prominently downtown to celebrate the bat's presence in the community, bat viewing at the Congress Avenue bridge is a significant tourist attraction, and an annual Bat festival is held downtown.)
- ✦ Explore how people learn about themselves through traditions. Compare/contrast the traditions of Texas to other places.
- ✦ Discuss the importance of writers and artists to the cultural heritage of communities. Identify the bat sculpture and the book, Batty About Texas, as examples of cultural heritage.
- ✦ Have the students color a drawing of Mexican free-tailed bats using their actual colors (browns and grays).

Grades 4-5

- ✦ Review Grades K-3
- ✦ Describe how Texas, the U.S., and other parts of the world are economically interdependent. How would the absence of bats in Texas negatively influence the economy (think about agricultural consequences).
- ✦ Explain how works of art (like the bat sculpture and Batty About Texas) reflect the times during which they were created.
- ✦ Have students draw pictures to demonstrate what they have learned about bats.

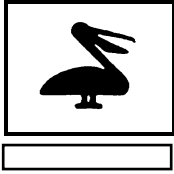
Language Arts Connections

Grades K-1

- ✦ Describe how the illustrations contribute to the text.
- ✦ Read Batty About Texas aloud to students. Have the students generate questions that are answered by the text. (An example: What do Mexican free-tailed bats eat?)
- ✦ Read another book about bats and compare/contrast themes and ideas that are represented in both works.

Grades 2-3

- ✦ Review Grade K-1.
- ✦ Discuss the purpose of the book, Batty About Texas. Explore why the author may have chosen to write the text.
- ✦ Read Batty About Texas aloud to students. Have the students generate questions that are answered by the text. (An example: What do Mexican free-tailed bats eat?) Next, have students generate questions not answered by the book. Conduct research using a variety of sources (example: www.batcon.org).
- ✦ Allow the students to make a list of vocabulary words from the book, Batty About Texas. Explain how vocabulary is developed through reading.



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Language Arts Connections, Continued

Grades 4-5

- ✦ Review Grade K-3
- ✦ Explain how reading increases knowledge of the students' culture. Discuss how Batty About Texas provides information about Texas' cultural heritage. Further discuss some other animals that are familiar to most Texans.
- ✦ Analyze the book, Batty About Texas, and describe how the author uses language for an intended purpose. Who is the author's intended audience?
- ✦ Explain how writing may be used to influence, persuade, or argue a point of view. Explore why the author may have written the text.
- ✦ Describe how the language of the text affects the listener. Why do you think the author chose to write the text from the bat's perspective?

Math Connections

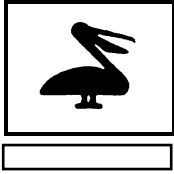
Grades 2-5

- ✦ Construct a graph to illustrate some of Texas' major bat colonies and the correlating estimated number of bats that dwell in each colony.
- ✦ Using the peak estimation that an insect-eating bat may eat up to 1200 "bugs" in one hour, create problems to analyze how many insects the bat would eat over longer periods of time. (Example: How many insects would the bat consume in 2 hours, 24 hours, one week, one month, etc...)
- ✦ Use a ruler to draw a Mexican free-tailed bat based on its average body size and wing span. (This activity crosses over into Science as well, given that it is a means of collecting data.)

Geography Connections

Grades K-5

- ✦ Using an outline of Texas, identify where the major bat colonies exist.
- ✦ Using an outline of both the North and South American continents, identify where Mexican free-tailed bats may be found.

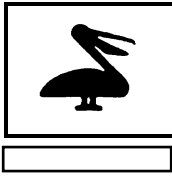


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Discussion questions for comprehension:

1. What are baby bats called?
2. How many different kinds of bats may be found in Texas?
3. Which Texas city is closest to Bracken cave, home of the world's largest bat colony?
4. Mexican free-tailed bats are social creatures and they prefer to live in groups. What is a group of bats called?
5. Which Texas city hosts the largest urban bat colony in North America? Hint: It's the capital city of Texas.
6. Is a bat a reptile, bird, or mammal?
7. True or false? About 1 of every 10 animals on earth is a bat. (Answer: False. About 1 of every 4 animals on earth is a bat.)
8. What unique trait do bats possess that makes them "one of a kind" in comparison to other mammals?
9. How high can a Mexican free-tailed bat fly? (Prompt: Up to 1, 2, or 10 miles high?)
10. Do Mexican free-tailed bats fly slowly or quickly in comparison to most other bats?
11. Are most humans nocturnal or diurnal? What about bats?
12. What do Mexican free-tailed bats eat?
13. Are bats blind?
14. What special sense/ability do bats possess and often use to help them locate their prey?
15. Do Mexican free-tailed bats eat more or less food per day than typical humans?
16. How do Mexican free-tailed bats help Texas farmers?
17. What word is used to identify bat waste (or "poop")?
18. Why can Texas be described as the battiest state in the U.S.A.?



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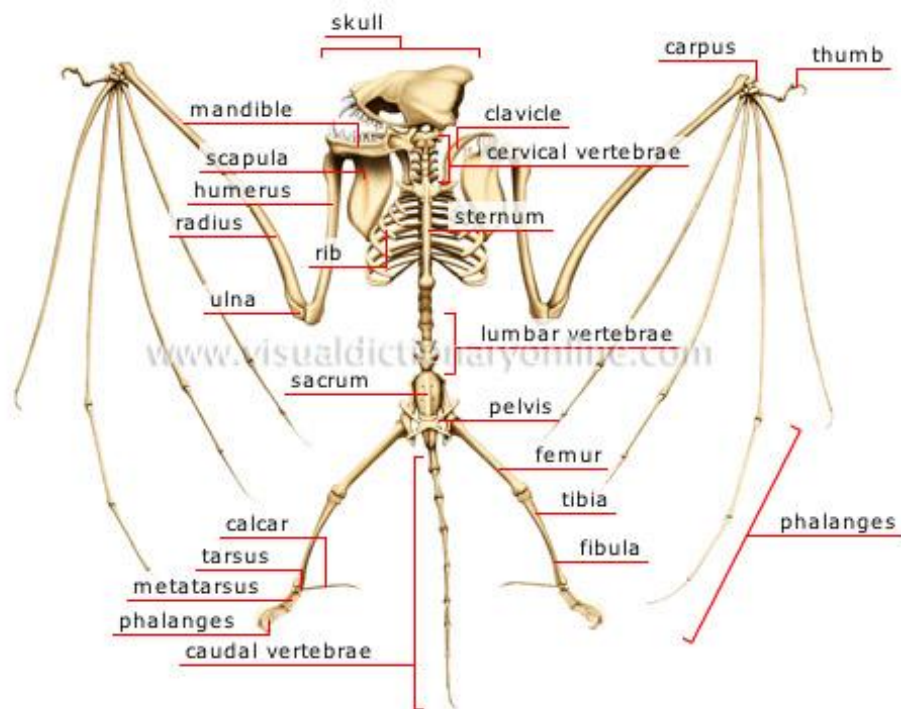
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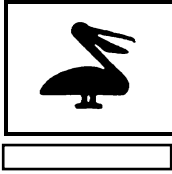
Vocabulary words

Define the following vocabulary words found in *Batty About Texas*:

Migrate:
Colony:
Urban:
Mammal:
Nocturnal:
Diurnal:
Roost:
Echolocation:
Pesticide:
Guano:
Fertilize:
Acre:

Bat skeleton (labeled)





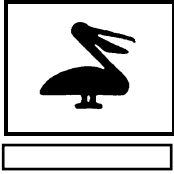
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North and South America



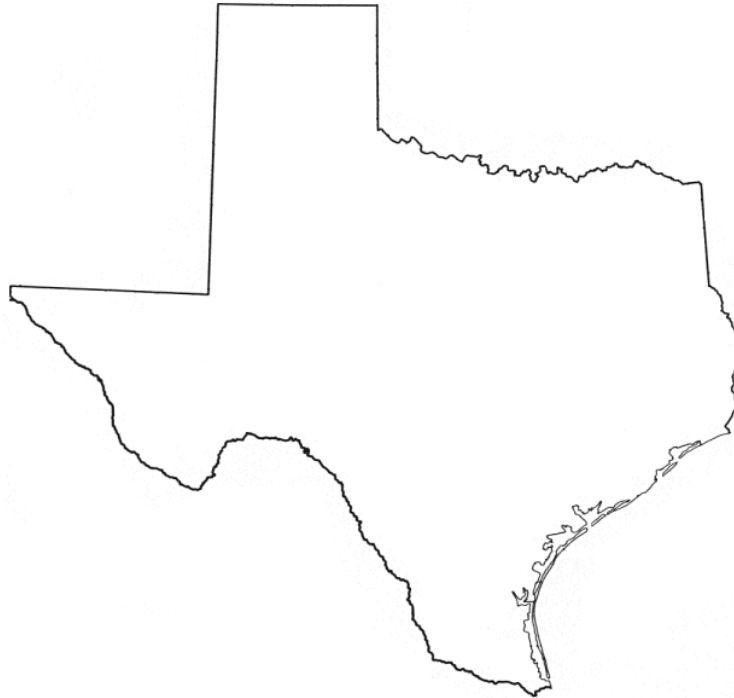
The shaded areas here show where Mexican free-tailed bats can be found.



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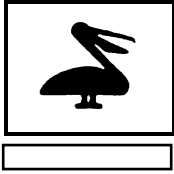
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Texas map outline:



Examples of Texas bat colonies (numbers of bats are peak estimations):

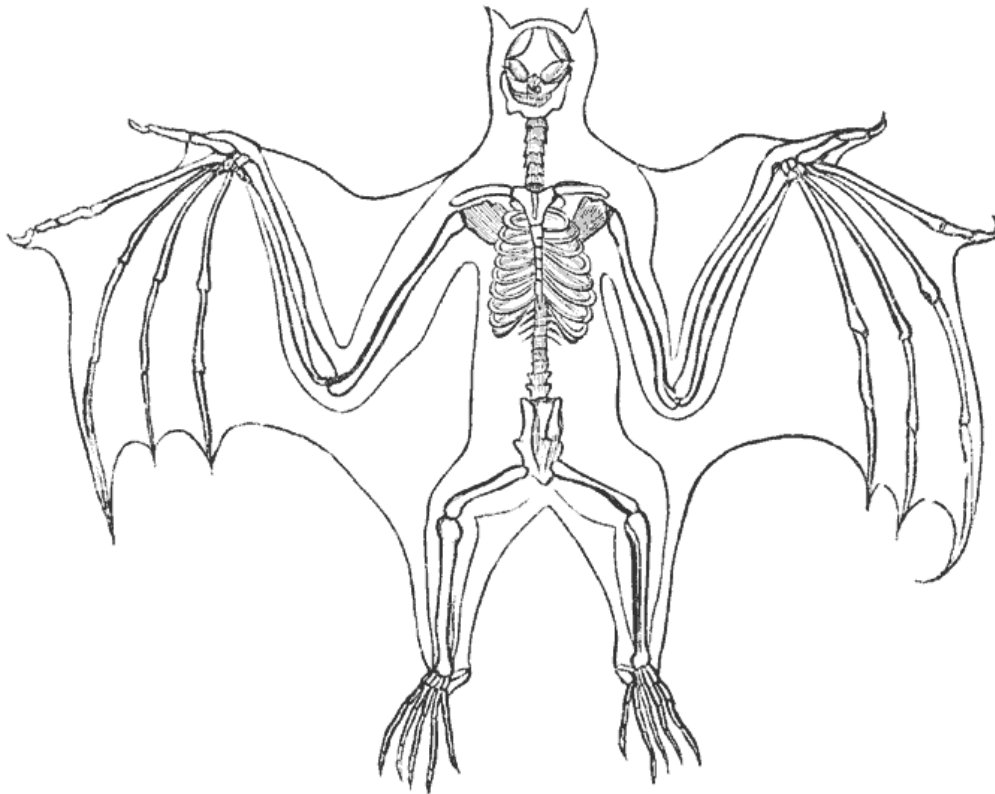
Bracken Cave in Garden Ridge (near San Antonio): 20 million
Frio Cave (near Concan): 2-6 million
Devil's Sinkhole (near Rocksprings): 3 million
Clarity Tunnel (near Flomont): 1 million
Eckert James River Cave (near Mason): 1.4-6 million
Old Tunnel (near Sisdale): 1.3 million bats
Bamberger Ranch (between Johnson City and Blanco): <1 million
Austin's Congress Avenue bridge: 1.5 million
Round Rock's McNeil Road overpass on I-35: unknown
Houston's Waugh Drive bridge: 250,000

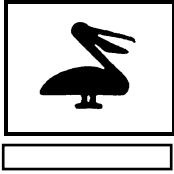


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Bat skeleton outline





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BATTY ABOUT TEXAS

By J. Jaye Smith

Illustrated by Kathy Coates

Bo the Mexican free-tailed bat is one of 100 million bats that live in Texas, and in this colorful picture book, he takes children on an exciting trip across the Lone Star State and educates readers with dozens of “bat facts.”

There are thirty-two different species of bats living in Texas and more than one million living under the Congress Avenue Bridge in Austin. Bo and his friends can be found all over, but most people will never see them up close. They love to hide, and caves are great places for that. In fact, the largest bat colony on earth can be found in Bracken Cave, near San Antonio. There are almost as many bats in that one cave as there are people in the entire state!

One in every four mammals is a bat, and bats help control mosquito populations. Bo explains echolocation and how it’s used to help bats hunt and fly, and he explores the great state of Texas from a unique bat’s eye view.

ABOUT THE AUTHOR

J. Jaye Smith spent her childhood in Slidell, Louisiana, and found her passion in the creative arts while still in high school. She attended Belmont University and graduated cum laude with a bachelor of science degree in elementary education in 1993. Smith has worked as a vocalist and a music teacher for most of her life and is also an accomplished songwriter. She lives in Austin, Texas, with her family and spends her free time reading, dancing, and gardening.

ABOUT THE ILLUSTRATOR

Kathy Coates is a member of the Society of Children’s Book Writers and Illustrators and has been painting commission portraits since the early 1990s. She has an associate degree in applied science from Central Piedmont College in Charlotte, North Carolina.

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Illustrated by Kathy Coates

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