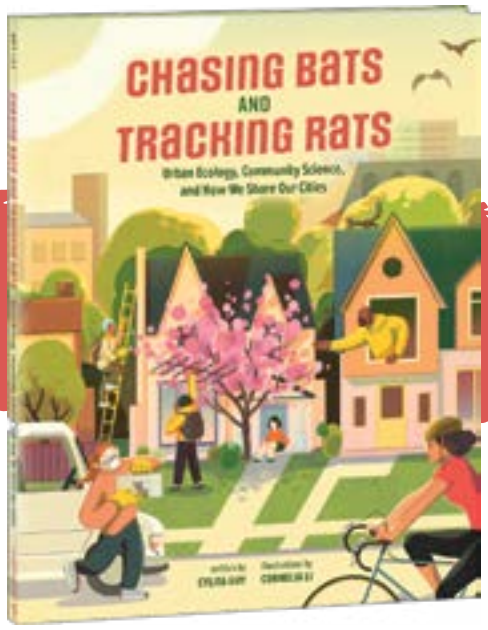


EDUCATOR GUIDE

CHASING BATS AND TRACKING RATS

Urban Ecology, Community Science, and How We Share Our Cities

by Cylita Guy • illustrated by Cornelia Li

GENRE: middle grade non-fiction

THEMES: STEM, urban ecology, animals, scientific method, community science, scientists, wildlife, real-world problems, problem-solving, bias

SUITABLE FOR: Grades 4–7, Ages 9–12

GUIDED READING LEVEL: Fountas and Pinnell N

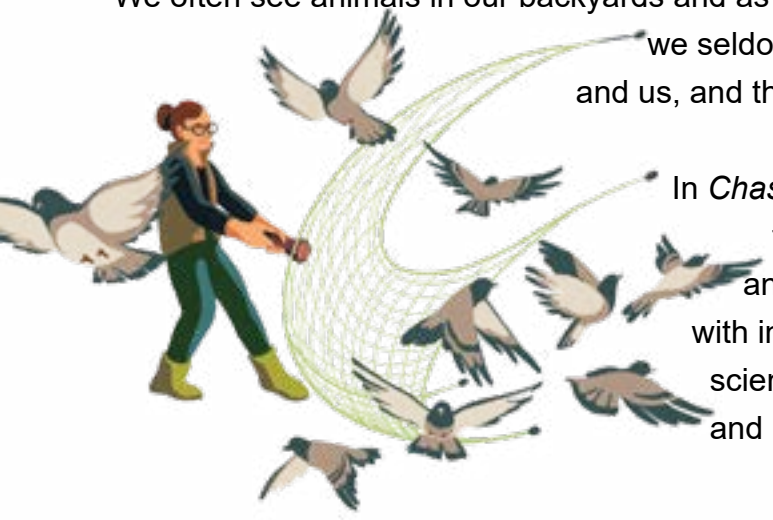
LEXILE: 1070L

COMMON CORE STANDARDS: CCSS.ELA-Literacy Strand-Reading literature:
RL.3.1,2,3,4,5,6,7,8,9
SL.3.11a,1b,1c,1d,2,3,4,5,6
W.3.1,1a,1b,1c,1d,3,3a,3b,3c,3d,4,5,6
L.3.3a,3b,4,4aa,4b,4c,4d,5,5a,5b,5c,6

SUMMARY:

We often see animals in our backyards and as we drive through our city, but we seldom think of the relationship between those animals and us, and the impact animals have on our community.

In *Chasing Bats and Tracking Rats*, eleven scientists share their work on the relationship between urban wildlife and the cities they live in. Through storytelling along with interesting animal facts, young readers can see the scientific method in practice and learn about the racism and bias that some scientists have to endure.



Please remember that the suggested questions and activities within this educator guide are meant to serve as a starting point. Educators are encouraged to select items from each part of the guided inquiry process that work best for their style of teaching and will help them meet their goals when covering the topics in this book. Activities and prompts should be tweaked and/or reformatted to best fit your students, context, and community to ensure equity and inclusion.

BEFORE READING THE BOOK

These activities help introduce the topic of the book and allow students to develop interest by accessing prior knowledge and making predictions.

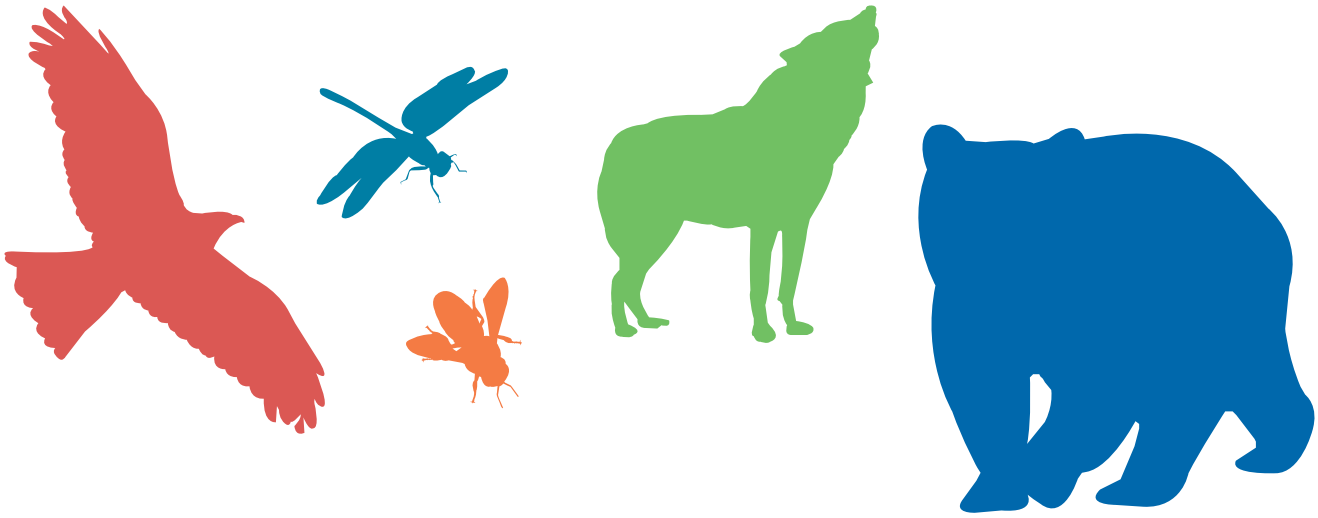
1. Ask students why the book is titled *Chasing Bats and Tracking Rats*. What do they think might happen in the book?

2. Ask students to look at the questions under each chapter heading in the table of contents and try to answer them.

3. Ask students why it is important to learn about animal habitats.

4. Ask students whether they live in rural, suburban, or urban areas. What kind of impact do they think each of these types of area might have on local wildlife?

5. Pages 3–6 feature key terms. Assign a word to each pair of students and use https://info.flipgrid.com where students can creatively share the definition of that word. Play the videos on the projector for everyone to watch.



WHILE READING THE BOOK

These activities check on comprehension, stimulate interest, involve readers in reflection as they read, and encourage consideration of other readers' reactions.

CHAPTER 1: CHASING DOWN BIG BROWNS

1. Watch a live clip on bats at https://batworld.org/bat-cams/
2. In their notebooks, direct students to create a Know-Wonder-Learned (KWL) T-chart, with the title *Bats*. They will fill out the Know and Wonder sections on their own.

K-W-L Chart

*Assess what you know about a particular topic before and after you have engaged with it. Fill the the columns below with what you **K**now about the topic, what you **W**ant to know, and what you've **L**earned.*

What do you **K**now about the topic?	What do you **W**ant to know?	What did you **L**earn?

Scaffolding questions for:
Know: What are some things you already know about bats? How do they look? What do they eat? Where do they live?
Wonder: What questions do you have about bats? Do you wonder how they live in the city? What about bats do you want to learn more about?

After reading the chapter, students will fill in the Learned section of the KWL chart. Ask students what they learned about bats in Chapter 1.

Discuss students' wonder questions. Were their questions answered after reading the text? If not, research the answers using the following website: https://kids.nationalgeographic.com/search?q=bats&location=srp&type=manual

CHAPTER 2: RATMOBILE TO THE RESCUE

3. Think-Pair-Share: Allow students a couple of minutes to think about their answers to each of the questions below and then pair up with a peer to share their responses.

    • Have you seen rats in your neighborhood? If so, where?

    • What did you do when you encountered the rat(s)?

    • Are rats an important part of your community? Why or why not?

CHAPTER 3: BEES AND A BUG VACUUM

4. Ask students: How does climate change impact bees and the plants they pollinate? Why do some species of bees not survive in cities?

CHAPTER 4: BACKYARD BEAR BUFFET

5. Ask students to make a list of animals they might see going through their trash can at night. Why do students think the bears in Chapter 4 were searching for food in people's backyards?

6. "Human-wildlife conflict is any negative interaction between people and animals" (page 41). Ask students what they would do if they heard animals going through their trash cans. Would it be a positive or negative interaction? What kinds of animals might they find in the trash can?

CHAPTER 5: BOLD COYOTE, BASHFUL COYOTE

7. Ask students to explain what role coyotes play in the ecosystem. How have coyotes' behavior changed over time as they interact with humans?

8. "Data from Chris's project, and others around North America, can be used to encourage urban planners to make sure that all neighborhoods have green spaces capable of supporting equal amounts of biodiversity" (page 56). Instruct students to use Google Maps to locate the green spaces in your local community. How many can they find?

CHAPTER 6: MICROPLASTICS, MAJOR PROBLEMS

9. "But pollution is something we can change. Rachel hopes her work will motivate cities to come up with ways to prevent salt, microplastics, and other pollutants from entering our waterways or reduce and even eliminate their use" (page 67). Ask students to write letters to your city council on ways to help reduce pollution and the importance of doing so.

CHAPTER 7: BIRDWATCHING BIAS

10. "Racial bias means that sometimes people wrongly think Black, Indigenous, and other scientists of color are suspicious" (page 73). Ask students if they have ever witnessed or experienced racial bias, ensuring that students don't feel pressured to share if they aren't comfortable doing so. If they are comfortable sharing, ask students how witnessing and/or experiencing bias made them feel.

11. What were some of the issues with relying on data from eBird?

CHAPTER 8: A BIKE TO BEAT THE HEAT

12. How do plants and trees cool down cities?
13. Ask students whether they walk, get a drive, or bike to school. How do students feel that their daily commutes might impact the environment?
    Participate in walk/bike to school day. Visit http://www.walkbiketoschool.org for more information.

AFTER READING THE BOOK

These activities inspire continued reflection and response to the text, bring conclusion to the experience of reading this text, and stimulate further extensions.

1. Ask each student to pick an animal (bat, rat, bee, bear, coyote, bird) and then answer the following questions about this animal:
    - How does this animal adapt to life in the city?
    - How does its presence affect its environment?
    - What is the relationship between humans and this animal?

2. Why is it important for humans to preserve nature?

3. What are some of the differences between higher-income neighborhoods and lower-income neighborhoods when it comes to data collection and green spaces?

4. What were some of the methods the scientists used to safely capture animals?

5. Pick an animal (bat, rat, bee, bear, coyote, bird) and research additional animal facts. Share your learning (poster, PowerPoint/Prezi, model).

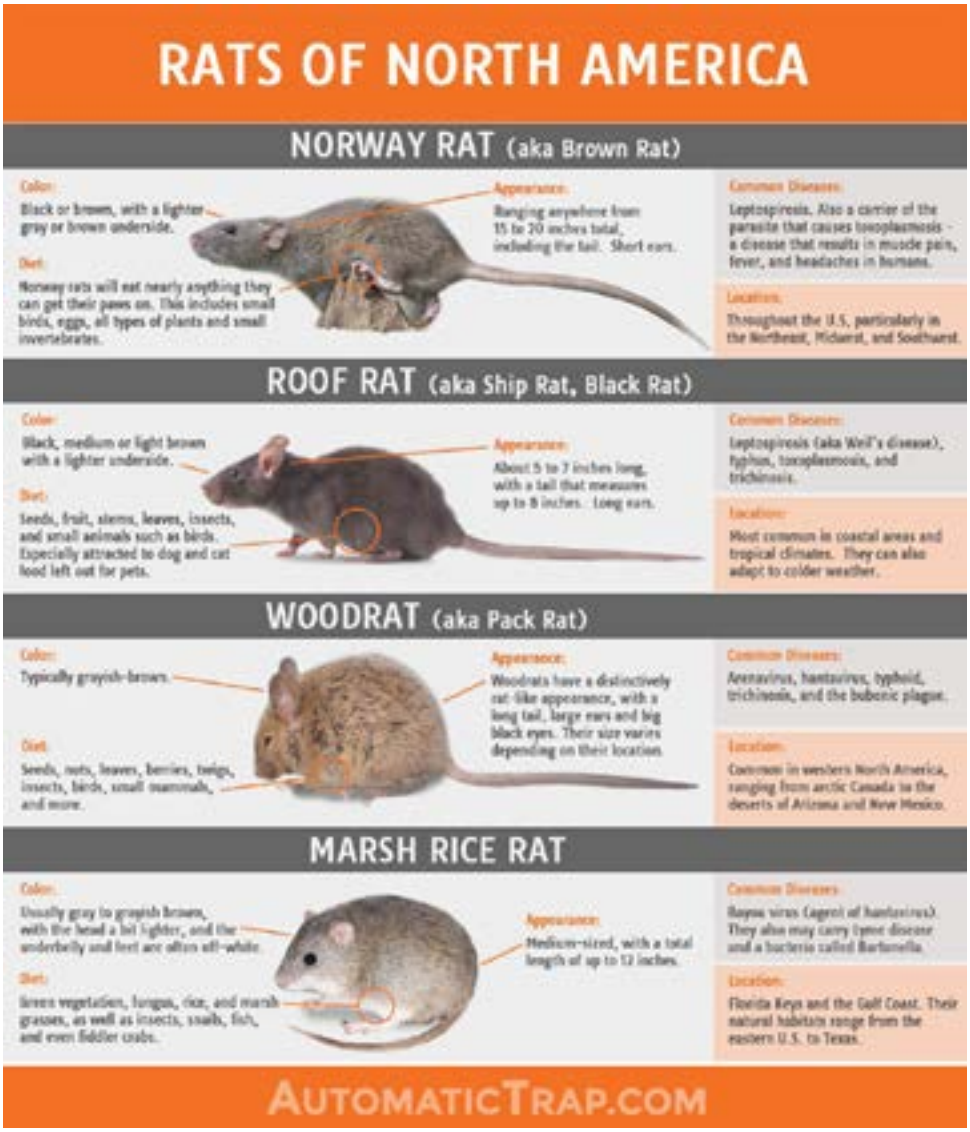
EXTENSION ACTIVITIES

These activities are only a start. They are designed to support the goal of helping students explore the book and their own creativity. These activities go beyond the text to encourage critical and creative thinking while building problem solving skills.

1. Ask students to imagine that they are bats who live in the city. After spending some time in the park in the early evening to eat, where do they go and what do they do for the rest of the night while the whole city is asleep?

2. In groups of three, ask students to design a rat trap like Kelly, so they can trap and study a rat. What materials will they need to create this trap? Ask students to sketch out their designs.

   Have students build the rat traps. The teacher can put a toy mouse in each trap or a paper copy (see below). Students can examine the characteristics of the rat including its color, size, and classification.



3. Watch the following video with students: https://www.pbs.org/video/its-okay-be-smart-bees-dying/
   Ask students to respond to the video: What would happen to our environment if there were no more bees? Did they learn anything from the video that added to their understanding of the book?
   Resource: https://www.wholekidsfoundation.org/bee-activities