

## **Teacher's Guide for ODYSSEY**

February 2013: Animals in the City

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### **Teacher's Note:**

This guide contains project ideas, short answer, extended response, fill-in, and true/false with correction. The variation is designed to have the students think critically, as well as to test their comprehension. An answer key to the short answer sections can be found at the end of the guide.

### **Extended Response: Comprehension & Critical Thinking**

The questions below can be used as written, simply answered in complete sentences or easily transformed into longer essay (ELA) style questions, or even research topics. In any case, have the students support their answers with details from the text or use critical thinking skills to create a thorough and interesting answer. The questions, essays and projects have been aligned with the **Common Core Standards**. Consider the level of your students when deciding how to use the questions.

### **"Tobie, Big-City Dog" p. 6-10**

1. Describe the process involved in getting ready to take Tobie out in the morning.
2. What information do dogs get from their heightened sense of smell?
3. How did it come about that dogs are permitted off leash in certain areas of Central Park?
4. What have animal behaviorist proven to be true regarding safety when dogs are off leash?  
Are you surprised by this fact...why or why not?
5. Why do you think that city dogs have the longest life span of all dogs?
6. How is walking a dog beneficial for the owners?
7. What does the "Paws" program do?
8. What are the biggest challenges that "Paws" confronts?

### **"Singing Over the Noise" p. 11-13**

1. What are some of the reasons that many species of songbirds thrive in cities?
2. List some of the ways that birds adapt to their environment.
3. Why do male songbirds sing? Why do females keep quiet?
4. How does the availability of a food source determine where birds will live?
5. How do the lights of a big city affect the songbirds?
6. What are some of the dangers that face city birds?
7. Why will you find more birds, but less species living in the cities?

### **"Shoo!" p. 14-15**

1. What are some of the benefits of unintentional bird habitats?
2. List at least 3 bird-human conflicts discussed in this article.

3. What are some common bird deterrents and why are they necessary?
4. Why does the author of this article suggest NOT feeding urban species of birds?

**"The Cosmopolitan Cockroach" p. 16-19**

*Mark the following statements TRUE or FALSE. Provide the correct answer if false.*

- \_\_\_\_\_ 1. Domestic roaches are synanthropes, creatures that benefit from a close association with humans.
- \_\_\_\_\_ 2. The cozy relationship between biped and bug dates back to prehistoric times.
- \_\_\_\_\_ 3. Cockroaches have been on Earth since the Jurassic Period.
- \_\_\_\_\_ 4. Modern cockroaches are very similar to their carboniferous ancestors.
- \_\_\_\_\_ 5. The best way to prevent an infestation of cockroaches is to eliminate food, water, and mold sources from the environment.
- \_\_\_\_\_ 6. Cockroaches are herbivore scavengers.
- \_\_\_\_\_ 7. Cockroaches can go without food for weeks and without water for days.
- \_\_\_\_\_ 8. Cockroaches navigate their surroundings with long sensory antennae and one set of incredible eyes.
- \_\_\_\_\_ 9. Cockroaches are so durable that they can survive decapitation.
- \_\_\_\_\_ 10. Cockroaches breathe through holes in their abdomens called spiracles.
- \_\_\_\_\_ 11. Cockroaches cannot continue to receive and process information from their surroundings even if they are separated from their main brains, antennae, and eyes.
- \_\_\_\_\_ 12. Microorganisms that carry diseases are called chitins.
- \_\_\_\_\_ 13. Cockroaches were the inspiration for the stable configuration of the DASH robot.
- \_\_\_\_\_ 14. Bionic bugs, outfitted with tiny cameras, may one day be dispatched to the scene of an unfolding disaster to scout out danger before human rescuers are sent into harm's way.

**"City Slicker Beez" p. 22-23**

1. How much honey does the average American eat per year?
2. How many pounds of nectar can be gathered from 2,600,000 flowers? Was this number higher or lower than you thought?
3. Why is the pollinating work that bees do so important to our food source?
4. How do the pollination areas differ from city bee to country bee?
5. Why is it recommended that you put a fence between the bees and the street in the city?
6. What weather conditions will make bees anxious and defensive?

7. How do humans confuse swarming with defensive bee behavior? What is the real purpose of swarming?
8. Do city hives or country hives produce more honey? Why?

### **"Sweet Adaptations" p. 28-31**

1. What are students in Parker's Urban Wildlife Research Lab at the University of Louisville studying?
2. What theories is Parker considering to explain the hesitation of squirrels when threatened?
3. What types of 'tricks' do squirrels play on one another?
4. What behaviors help squirrels survive city life?

**Opinion/Essay:** *How can humans better share where we live with wildlife? Give specific examples and provide details.*

### **"Critters Crossing" p. 32-35**

1. What is the purpose of wildlife crossing structures? Do they work?
2. What is 'transportation ecology'? What types of specialists are involved in this work?
3. How do animals respond to topography when forming natural crossings? How do specialists use this information to create the crossing structures?
4. Why is animal behavior studied in order to select the best crossing structure?
5. List some of the methods by which transportation ecologists are making wildlife crossings more effective and more affordable.

**Project:** *Work with a partner or small group to create a 3D model of an animal crossing. You must research your animal's behavior first, in order to create a crossing that would be appropriate for the animal population. Remember to consider species, location, habits and natural habitats.*

### **"Kitty Cam" p. 36-37**

1. How did veterinarian and ecologist, Sonia Hernandez, spy on cats without disturbing them and stopping them from acting naturally?
2. How did the inventor of the Crittercam get the idea for such an invention?
3. How have crittercams helped us to better understand the life stories of animals?
4. How did the crittercam show researchers how the cats spent their time? Were the activities what you expected?
5. How do cats impact the populations of their prey?
6. Why does Hernandez promote keeping cats inside and supervised?

### **" 'Trapping' Urban Wildlife Data" p. 38-40**

*Read the article in its entirety and then fill in the blanks. Refer back to the text if necessary.*

1. \_\_\_\_\_ is mobile cameras that provide a bird's-eye view of the animal's world.

2. An area's \_\_\_\_\_ would include generating a list of species living there and their population numbers, as well as data that may lead to a new understanding of the animals' stories.
3. A 'trapping camera's' sensors respond to \_\_\_\_\_, triggering the shutter to snap.
4. The biodiversity team's finding will help cities create strategies to \_\_\_\_\_ problems for humans and maximize healthy environments for \_\_\_\_\_.
5. Bat detectors pick up \_\_\_\_\_ signals sent out by bats as they navigate the night.
6. \_\_\_\_\_ scientists also play an important role in gathering wildlife data by reporting data or by setting up camera traps in their own backyards.
7. Seth Magle (director of the Urban Wildlife Institute) believes that we need to think of our cities as \_\_\_\_\_, where many different animals are finding food and mates, sheltering, and building habitats.

**"When Baboons and Monkeys Move In" p. 41-43**

1. Why would animals leave their natural habitats and move into urban areas where they have to survive among people?
2. Why are humans largely to blame for this animal migration?
3. How do economic challenges result in deforestation?
4. How does global warming affect animal migration?
5. What are some of the difficulties of monkey and baboons cohabitating with human populations?
6. How can cohabitations with 'wild' animals cause serious safety concerns?
7. What are some of the beneficial effects of the cohabitation?
8. What can humans do to help restore the balance of habitats between wildlife and humans?

**ANSWER KEY:**

**"Cosmopolitan Cockroach"**

- |                                   |                                    |
|-----------------------------------|------------------------------------|
| 1. True                           |                                    |
| 2. True                           | 8. False, two sets of eyes         |
| 3. False, carboniferous           | 9. True                            |
| 4. True                           | 10. True                           |
| 5. False, food, water and shelter | 11. False, CAN continue to receive |
| 6. False, omnivores               | 12. False, pathogens               |
| 7. True                           | 13. True                           |
|                                   | 14. True                           |

**"Trapping Urban Wildlife Data"**

1. crittercams
2. biodiversity
3. motion
4. minimize, animals
5. sonar
6. citizen

7. *ecosystem*