

CHAPTER 7**REAL-WORLD LAB*****You Be the Detective*****Living Mysteries**

In this lab, you will discover how some familiar mammals are classified.

◆ **Problem** How does a taxonomic key help you classify living things?

◆ **Skills Focus** observing, inferring, classifying

◆ **Materials**

pencil paper

◆ **Procedure**

1. Observe the five organisms labeled A through E. All of these organisms belong to the class known as mammals, a group that includes you and many of the animals that are most familiar to you. Each of these mammals belongs to a different order of mammals.
2. Examine the paired statements in the taxonomic key for mammals. Begin at Step 1 to identify the order to which the mammal in photograph A belongs. Because the animal in photograph A does not have five digits or hands with flexible thumbs, go to Step 2. Keep following the key until you identify this mammal's order.
3. Use the key to identify the order to which the mammals in photographs B through E belongs.

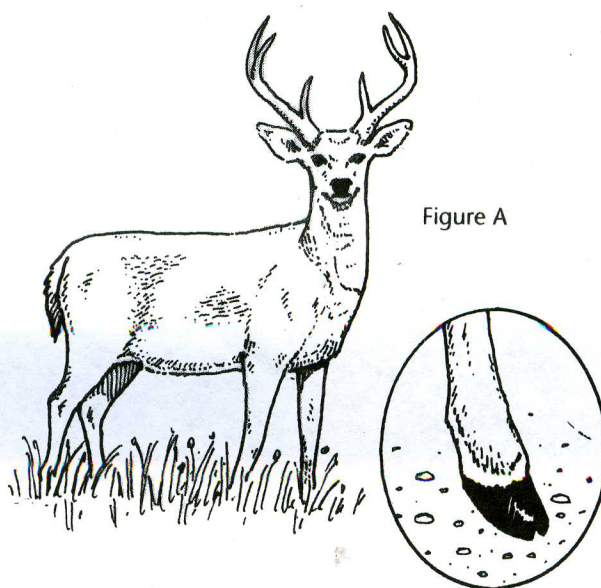


Figure A

REAL WORLD LAB (continued)

Taxonomic Key for Mammals	
Step 1	
1a. Have five digits on all limbs, and hands with flexible thumbs	Primates (including monkeys, chimpanzees, and humans)
1b. Do not have five digits on all limbs, and hands with flexible thumbs	Go to Step 2.
Step 2	
2a. Have limbs with claws or nails, not hooves	Go to Step 3.
2b. Have limbs with hooves, not claws or nails	Go to Step 4.
Step 3	
3a. Have long muscular trunks	Proboscidea (includes all types of elephants)
3b. Have sharp teeth for biting and tearing flesh	Carnivora (including lions, bears, and raccoons)
Step 4	
4a. Have limbs with an even number of hooved toes	Artiodactyla (including antelopes, sheep and cows)
4b. Have limbs with an odd number of hooved toes	Perissodactyla (including horses and rhinoceroses)

Figure B

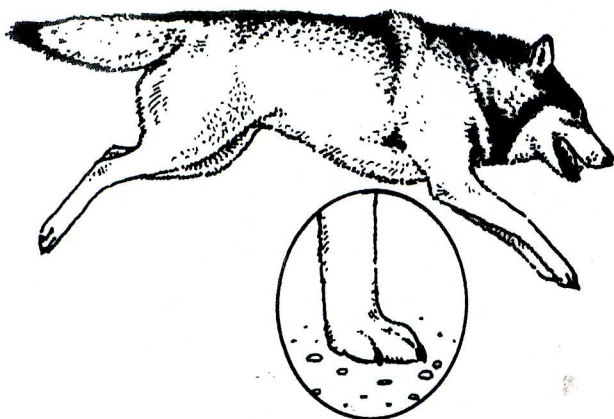
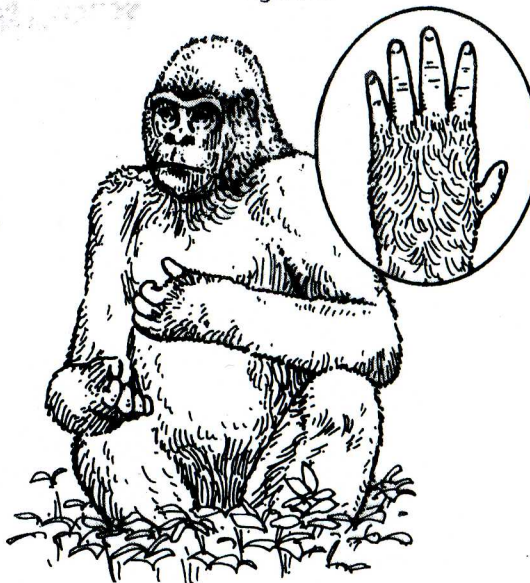


Figure C



REAL WORLD LAB (continued)

Figure D

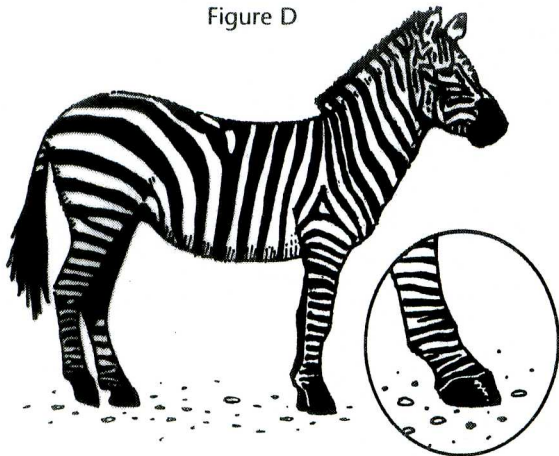
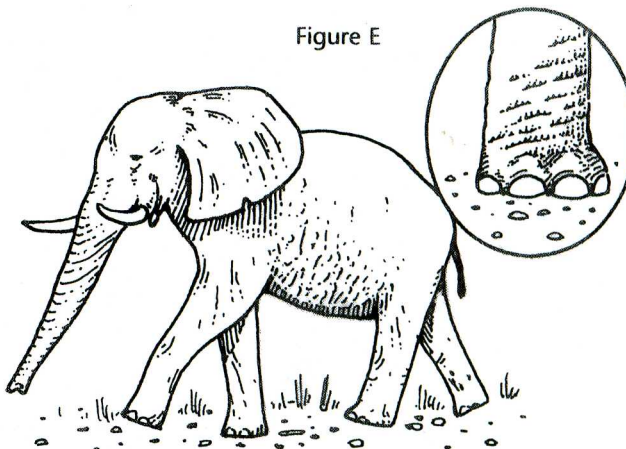


Figure E

**◆ Analyze and Conclude**

Write your answers on the back of this sheet or on a separate sheet of paper.

1. For each organism in the photographs, name the order of mammals to which it belongs.
2. Why is it important that the pair of statements at Step 1 are opposites?
3. Could you use this taxonomic key to classify animals that are not mammals? Explain.
4. Could you use this key to classify different types of carnivores, such as foxes, skunks, and walruses? Explain.
5. **Think About It** Based on your answers to questions 3 and 4, what can you infer about the limits of specific taxonomic keys?

◆ More to Explore

Try making a taxonomic key to sort four or five everyday objects such as writing implements or shoes. Try out your key on a partner to test it. Make any necessary changes. Then, exchange keys with a classmate. Use the keys to sort the selected objects.