



## 18.1 Finding Order in Diversity

### Lesson Objectives

-  Describe the goals of binomial nomenclature and systematics.
-  Identify the taxa in the classification system devised by Linnaeus.

### Lesson Summary

**Assigning Scientific Names** To study Earth's great diversity of organisms, biologists must give each organism a name. Biologists also must organize living things into groups in a logical way. Therefore, biologists need a classification system. The science of naming and grouping organisms is called **systematics**.

In the 1730s, Carolus Linnaeus developed a naming system, called **binomial nomenclature**. In binomial nomenclature, each species is assigned a two-part scientific name:

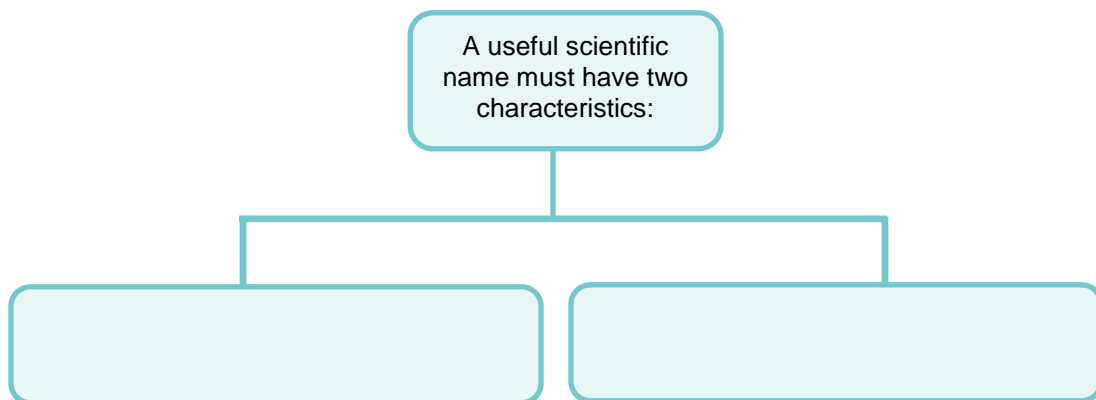
- ▶ The first part of the name refers to the **genus**, or a group of similar species.
- ▶ The second part of the name is unique to each species.

**Linnaean Classification System** Linnaeus's system of classification has seven different levels. From smallest to largest, the levels are species, genus, family, order, class, phylum, and kingdom. Each of the ranking levels is called a **taxon**.

- ▶ Just as a genus is a group of similar species, a **family** is a group of similar genera.
- ▶ An **order** is a group of similar families.
- ▶ A **class** is a group of similar orders.
- ▶ A **phylum** is a group of similar classes.
- ▶ A **kingdom** is a group of similar phyla.

### Assigning Scientific Names

1. Complete the graphic organizer.



For Questions 2–3, write the letter of the correct answer on the line at the left.

\_\_\_\_\_ 2. What is the science of naming and grouping organisms called?

- A. genetics
- B. speciation
- C. systematics
- D. linnaeanology

\_\_\_\_\_ 3. Modern systematists try to group organisms based on

- A. size.
- B. evolutionary relationships.
- C. ecological niche.
- D. physical appearance.

4. Why is it confusing to refer to organisms by common names?

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5. What is binomial nomenclature?

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6. What genus does the grizzly bear, *Ursus arctos*, belong to?

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7. What is the correct way to write scientific names in the binomial nomenclature system?

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## Linnaean Classification System

For Questions 8–10, complete each statement by writing the correct word or words.

- 8. The goal of systematics is to organize living things into groups, called \_\_\_\_\_, that have biological meaning.
- 9. The largest taxonomic category in the Linnaean system of classification is the \_\_\_\_\_, while the smallest is the \_\_\_\_\_.
- 10. Similar classes are grouped into a(n) \_\_\_\_\_, and similar orders are grouped into a(n) \_\_\_\_\_.

11. **THINK VISUALLY** Fill in the name of each missing taxonomic category in the chart below.

							<b>KINGDOM</b> <b>Animalia</b>
<hr/>							<b>Chordata</b>
							<b>Mammalia</b>
<hr/>							<b>Carnivora</b>
							<b>Ursidae</b>
<hr/>							<b>Ursus</b>
							<b>SPECIES</b> <b><i>Ursus arctos</i></b>
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### Apply the Big idea

12. How does Linnaeus's system of classification help establish the unity of life?

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