

18-1 Finding Order in Diversity





To study the diversity of life, biologists use a classification system to name organisms and group them in a logical manner.

Binomial Nomenclature



What is binomial nomenclature?

Carolus Linneaus developed a naming system called **binomial nomenclature**.



In binomial nomenclature, each species is assigned a two-part scientific name.

The scientific name is italicized.

Linnaeus's System of Classification



What is Linnaeus's system of classification?



Linnaeus's seven levels of classification are—from smallest to largest—

- **species**
- **genus**
- **family**
- **order**
- **class**
- **phylum**
- **kingdom**

Each level is called a **taxon**, or taxonomic category.
Species and genus are the two smallest categories.

Grizzly bear



Black bear



GENUS *Ursus*



SPECIES *Ursus arctos*

Genera that share many characteristics are grouped in a larger category, the **family**.

Grizzly bear



Black bear



Giant panda



FAMILY Ursidae

An **order** is a broad category composed of similar families.

Grizzly bear



Black bear



Giant panda



Red fox



ORDER Carnivora

The next larger category, the class, is composed of similar orders.

Grizzly bear



Black bear



Giant panda



Red fox



Abert squirrel



Class Mammalia

Several different classes make up a **phylum**.

Grizzly bear



Black bear



Giant panda



Red fox



Abert squirrel



Coral snake



PHYLUM Chordata

The **kingdom** is the largest and most inclusive of Linnaeus's taxonomic categories.

Grizzly bear



Black bear



Giant panda



Red fox



Abert squirrel



Coral snake



Sea star



KINGDOM Animalia

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Grizzly bear Black bear Giant panda Red fox Abert squirrel Coral snake Sea star



KINGDOM Animalia



PHYLUM Chordata



CLASS Mammalia



ORDER Carnivora



FAMILY Ursidae



GENUS *Ursus*



SPECIES *Ursus arctos*

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1 Which statement about classification is true?

a. Biologists use regional names for organisms.

A b. Biologists use a common classification system based on similarities that have scientific significance.

c. Biologists have identified and named most species found on Earth.

d. Taxonomy uses a combination of common and scientific names to make the system more useful.

18-1 Section QUIZ

2 Linnaeus's two-word naming system is called

A a. binomial nomenclature.

b. taxonomy.

c. trinomial nomenclature.

d. classification.

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3 Several different classes make up a(an)

- a. family.
- b. species.
- c. kingdom.

A d. phylum.

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- 4 A group of closely related species is a(an)
- a. class.
 - A** b. genus.
 - c. family.
 - d. order.

18-1 Section QUIZ

5 Which of the following lists the terms in order from the group with the most species to the group with the least?

a. order, phylum, family, genus

b. family, genus, order, phylum

A c. phylum, class, order, family

d. genus, family, order, phylum

END OF SECTION