

Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

Read these passages from the text and answer the questions that follow.

### Linnaean Classification

All modern classification systems have their roots in the **Linnaean classification system**. It was developed by Swedish botanist Carolus Linnaeus in the 1700s. He tried to classify all living things that were known at his time. He grouped together organisms that shared obvious physical traits, such as number of legs or shape of leaves. For his contribution, Linnaeus is known as the “father of taxonomy.”

The Linnaean system of classification consists of a hierarchy of groupings, called **taxa** (singular, taxon). Taxa range from the kingdom to the species.

The **kingdom** is the largest and most inclusive grouping. It consists of organisms that share just a few basic similarities. Examples are the plant and animal kingdoms.

The **species** is the smallest and most exclusive grouping. It consists of organisms that are similar enough to produce fertile offspring together. Closely related species are grouped together in a **genus**.

### Binomial Nomenclature

Perhaps the single greatest contribution Linnaeus made to science was his method of naming species. This method, called **binomial nomenclature**, gives each species a unique, two-word Latin name consisting of the genus name and the species name. An example is *Homo sapiens*, the two-word Latin name for humans. It literally means “wise human.” This is a reference to our big brains.

Why is having two names so important? It is similar to people having a first and a last name. You may know several people with the first name Michael, but adding Michael’s last name usually pins down exactly whom you mean. In the same way, having two names uniquely identifies a species.

### Revisions in Linnaean Classification

Linnaeus published his classification system in the 1700s. Since then, many new species have been discovered. The biochemistry of organisms has also become known. Eventually, scientists realized that Linnaeus’s system of classification needed revision. A major change to the Linnaean system was the addition of a new taxon called the domain. A **domain** is a taxon that is larger and more inclusive than the kingdom. Most biologists agree there are three domains of life on Earth: Bacteria, Archaea, and Eukaryota. Both Bacteria and Archaea consist of single-celled prokaryotes. Eukaryota consists of all eukaryotes, from single-celled protists to humans. This domain includes the Animalia (animals), Plantae (plants), Fungi (fungi), and Protista (protists) kingdoms.

### Questions

1. What is Linnaeus known for?

2. What is binomial nomenclature?

3. What is a major difference between a kingdom and a species?

4. What is a domain? What are the three domains?

5. List the members of the domain Eukaryota.

*Match the vocabulary word with the proper definition.*

### Definitions

- \_\_\_\_\_ 1. the science of classifying organisms
- \_\_\_\_\_ 2. groupings
- \_\_\_\_\_ 3. a taxon that is larger and more inclusive than the kingdom
- \_\_\_\_\_ 4. grouping of closely related species
- \_\_\_\_\_ 5. represents a phylogeny
- \_\_\_\_\_ 6. developed classification system in the 1700s
- \_\_\_\_\_ 7. the largest and most inclusive grouping
- \_\_\_\_\_ 8. the smallest and most exclusive grouping
- \_\_\_\_\_ 9. a group of organisms that includes an ancestor and all of its descendants
- \_\_\_\_\_ 10. the evolutionary history of a group of related organisms
- \_\_\_\_\_ 11. system in which modern classification systems are based
- \_\_\_\_\_ 12. gives each species a unique, two-word Latin name

### Terms

- |                          |                                   |              |
|--------------------------|-----------------------------------|--------------|
| a. binomial nomenclature | e. genus                          | i. phylogeny |
| b. Carolus Linnaeus      | f. kingdom                        | j. species   |
| c. clade                 | g. Linnaean classification system | k. taxa      |
| d. domain                | h. phylogenetic tree              | l. taxonomy  |

