

SECTION 18-1 REVIEW

FINDING ORDER IN DIVERSITY

VOCABULARY REVIEW Define the following terms.

- 1. **taxonomy** _____

- 2. **taxon** _____

- 3. **kingdom** _____

- 4. **Carolus Linnaeus** _____

- 5. **binomial nomenclature** _____

MULTIPLE CHOICE Write the correct letter in the blank.

- _____ 1. For many species, there are often regional differences in their
 - a. common names.
 - b. binomial nomenclature.
 - c. scientific names.
 - d. taxa.
- _____ 2. Which two kingdoms did Linnaeus recognize?
 - a. bacteria and animals
 - b. plants and animals
 - c. plants and fungi
 - d. protists and animals
- _____ 3. The taxon "phylum" is subdivided into
 - a. an order.
 - b. a family.
 - c. a genus.
 - d. a class.
- _____ 4. In the scientific name of an organism, the first part is the
 - a. species.
 - b. variety.
 - c. subspecies.
 - d. genus.
- _____ 5. The scientific way to write the species name of the lion is
 - a. Panthera leo.
 - b. panthera leo.
 - c. *Panthera leo*.
 - d. *Panthera Leo*.

SHORT ANSWER Answer the questions in the space provided.

1. Give an example of an animal that has one scientific name but two or more common names. What are the common names? (p.448) _____

2. The word *bi-* means “two”, and the word part *nomen* means “name”. Explain how these word parts relate to the system scientists use to identify organisms. (p.448) _____

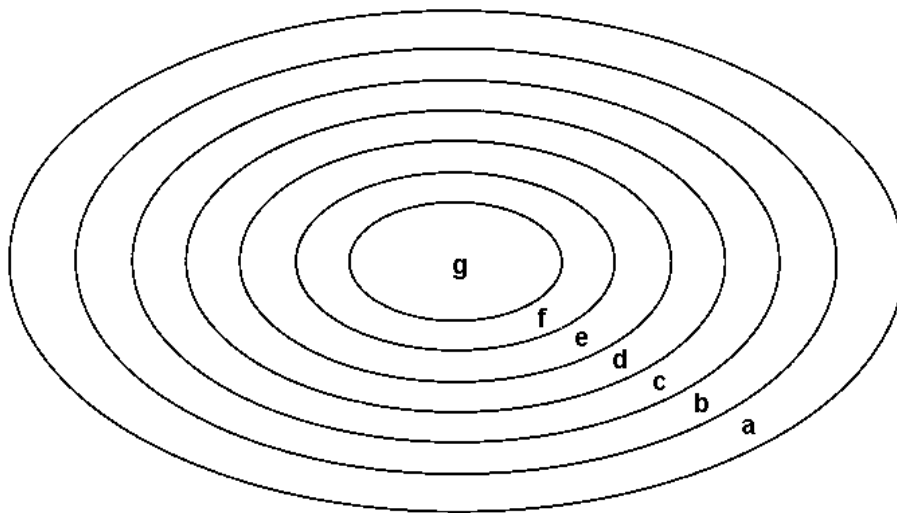
3. How did binomial nomenclature avoid the problems of the first attempts at scientific naming? (p.448) _____

4. Name the taxon in Linnaeus’s system of classification that would contain the following organisms; fish, clam, lion, jellyfish, eagle, grasshopper, and frog. (p.450) _____

5. On what two languages are scientific names based? (p.448) _____

STRUCTURES AND FUNCTIONS Use the figure to answer the following question. (p.450)

1. Fill in the names of the seven levels of organization in Linnaeus’s system of classifying organisms, with “a” representing the largest category and “g” the smallest category.



- a _____
- b _____
- c _____
- d _____
- e _____
- f _____
- g _____

SECTION 18-2 REVIEW

MODERN EVOLUTIONARY CLASSIFICATION

VOCABULARY REVIEW Define the following terms.

- 1. **phylogeny** _____

- 2. **derived characteristic** _____

- 3. **cladogram** _____

- 4. **molecular clock** _____

MULTIPLE CHOICE Write the correct letter in the blank.

- _____ 1. Which of the following shows the evolutionary relationships among a group of organisms?
 - a. taxon
 - b. binomial nomenclature
 - c. domain
 - d. cladogram
- _____ 2. A unique trait that is used to construct a cladogram is called a
 - a. taxon.
 - b. molecular clock.
 - c. domain.
 - d. derived characteristic.
- _____ 3. Which statement about the molecular clock model of evolutionary relationships is not correct?
 - a. The molecular clock is based on simple mutation rates.
 - b. Some mutations have a positive affect on an organism's phenotype.
 - c. Some mutations have a negative affect on an organism's phenotype.
 - d. Neutral mutations are not important when comparing the genes of related organisms.
- _____ 4. One good example of a derived characteristic is provided by the uniqueness of the
 - a. feathers of birds.
 - b. legs of dogs.
 - c. legs of insects.
 - d. scales on fishes.
- _____ 5. Characteristics that appear in recent parts of a lineage but not in its older members are called
 - a. genes.
 - b. taxa.
 - c. cladograms.
 - d. derived characteristics.

SHORT ANSWER Answer the questions in the space provided.

1. How is evolutionary classification different from Linnaeus's system of classification? (p.452) _____

2. What type of characteristic is considered in a cladogram? (p.453) _____

3. How are DNA mutations used as a molecular clock? (p.455) _____

4. A paleontologist, using radioactive dating, finds a fossil to be 7 million years old. The morphology of the fossil is similar to two modern day species and concludes that it is an ancestor of both. A molecular biologist studying the DNA sequence of a particular gene in both modern day species concludes that the two species shared a common ancestor 12 million years ago. Which method of dating do you believe would be more accurate, radioactive dating or the molecular clock? Explain your reasoning. (p.455)

5. A scientist analyzes the insulin molecules, which are proteins, of three different species, A, B, and C. The insulin from A is different from B in seven ways and from C in three ways. The insulin from B is different from C in four ways. Which two species appear to be more closely related? Explain your answer. (p.455) _____

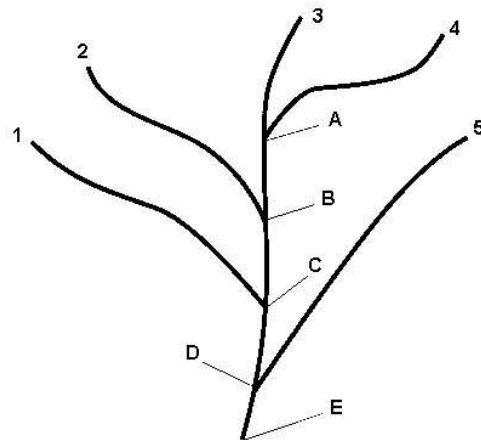
STRUCTURES AND FUNCTIONS Use the figure to answer the following questions. (p.452)

The phylogenetic tree shown to the right indicates the evolutionary relationships for a hypothetical group of modern organisms, labeled 1-5, and their extinct ancestors, labeled A-E.

1. Which two modern organisms are likely to be most closely related? _____

2. What was the most recent common ancestor of organisms 2 and 3? _____

3. What was the most recent common ancestor of organisms 1 and 5? _____



SECTION 18-3 REVIEW

KINGDOMS AND DOMAINS

VOCABULARY REVIEW For each of the kingdoms listed below, state the cell type (prokaryotic or eukaryotic), number of cells (unicellular, multicellular, or both), and form of nutrition (autotroph, heterotroph, or both).

- 1. **Archaeobacteria** _____
- 2. **Eubacteria** _____
- 3. **Protista** _____
- 4. **Fungi** _____
- 5. **Plantae** _____
- 6. **Animalia** _____

MULTIPLE CHOICE Write the correct letter in the blank.

- _____ 1. The organisms that live in hostile environments that cannot support other forms of life are members of the kingdom
a. Protista. b. Archaeobacteria. c. Eubacteria. d. Fungi.
- _____ 2. Which of the kingdoms in the six-kingdom system of classification was once grouped with plants?
a. Fungi. b. Carnivores. c. Protista. d. Archaea.
- _____ 3. Mushrooms, puffballs, mildews, and molds belong to the kingdom
a. Fungi. b. Plantae. c. Protista. d. Archaea.
- _____ 4. The three-domain system recognizes fundamental differences between two groups of
a. prokaryotes. b. eukaryotes. c. protists. d. algae.
- _____ 5. The domain that includes organisms with true nuclei and membrane bound organelles is called
a. Bacteria. b. Archaea. c. Animalia. d. Eukarya.
- _____ 6. The domain Eukarya includes
a. archaeobacteria, protists, fungi, and plants. c. protists, fungi, eubacteria, and archaeobacteria.
b. protists, fungi, plants, and animals. d. fungi, eubacteria, plants, and animals.
- _____ 7. Organisms in the kingdoms Eubacteria and Archaeobacteria were previously classified in what kingdom?
a. Monera b. Animalia c. Fungi d. Plantae

SHORT ANSWER Answer the questions in the space provided.

1. What characteristics distinguish archaebacteria from eubacteria? (p.459) _____

2. What characteristics distinguish fungi from plants? (pp.460-461) _____

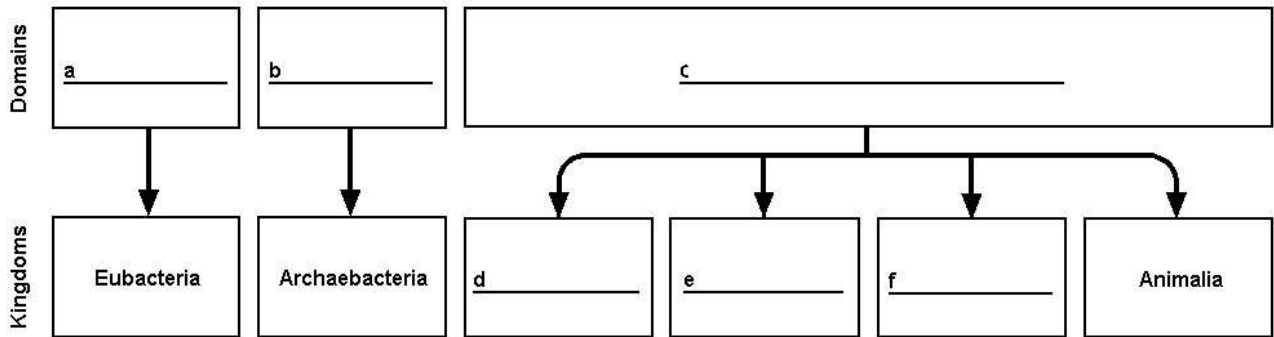
3. Which kingdoms include only heterotrophic organisms? (p.459) _____

4. What evidence led scientists to develop the three domain system of classification? (p.458) _____

5. Another possible way to classify organisms would be to separate them into unicellular and multicellular organisms. Explain why this is not a useful classification system. (p.459) _____

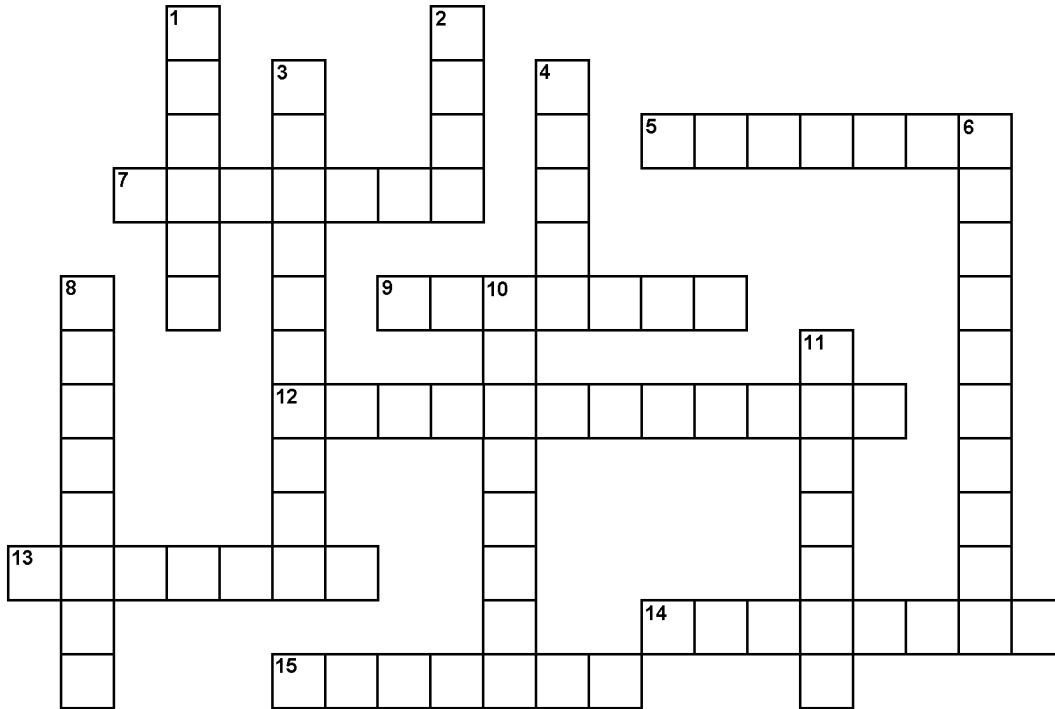
6. In the discipline of taxonomy, what is a domain? (p.458) _____

STRUCTURES AND FUNCTIONS The diagram below represents the relationship between the three domain system and the six kingdom system of classifying organisms. Label each box in the diagram with the correct domain or kingdom name. (p.459)



VOCABULARY - CHAPTER 18

The crossword puzzle is a simple way to master some of the more important vocabulary terms in this chapter.



Across

5. kingdom of multicellular, autotrophic organisms with cell walls made of cellulose
7. the domain of all organisms except bacteria
9. *Homo* _____ is the scientific name of man
12. a tree that shows an evolutionary relationship much like a family tree shows how family members are related
13. the feathers of birds is an example of a shared, _____ characteristic
14. the branch of biology that names and groups organisms
15. the domain of extreme bacteria

Down

1. solid ball of cells
2. groupings with common characteristics
3. an opening in a blastula which may become either the mouth or anus of an animal
4. kingdom that includes mushrooms and yeasts
6. informal name of the sea star phylum
8. he developed binomial nomenclature
10. the kingdom that includes algae and protozoans
11. largest category used by early taxonomists

The following terms are words that are **not** found in Chapter 18. Use a reference book to find out the meaning to these words. **sapiens, phylogenetic, morula, blastopore, and echinoderm.**