CHAPTER REVIEW

CONTENT REVIEW

Multiple Choice

Choose the letter of the answer that best completes each statement.

1. The largest taxon is a
   a. kingdom.
   b. species.
   c. family.
   d. phylum.
2. A good classification system does all of the following except
   a. show relationships.
   b. show evolutionary trends.
   c. create confusion.
   d. use one name for an organism.
3. The two-name system for classifying organisms was developed by
   a. Charles Darwin.
   b. Thomas Edison.
   c. a Swedish king.
   d. Carolus Linnaeus.
4. *Acer rubrum* and *Acer palmatum* are both names of different kinds of maple trees. What is the genus name for all maple trees?
   a. *Acer*
   b. *rubrum*
   c. *palmatum*
   d. Cannot be determined from the information given.
5. The science of naming organisms and placing them in groups is called
   a. biology.
   b. taxonomy.
   c. ornithology.
   d. ecology.
6. Each of the following is the name of a taxon except
   a. group.
   b. genus.
   c. family.
   d. kingdom.
7. The only taxon that has a clear biological identity is the
   a. kingdom.
   b. phylum.
   c. genus.
   d. species.
8. The kingdom that includes all prokaryotes is the
   a. Monera.
   b. Fungi.
   c. Protista.
   d. Plantae.

True or False

Determine whether each statement is true or false. If it is true, write "true." If it is false, change the underlined word or words to make the statement true.

1. All members of the kingdom Protista are prokaryotes.
2. Linnaeus developed the two-name system for naming organisms.
3. Fungi are photosynthetic, heterotrophic organisms.
4. All members of the plant kingdom are unicellular.
5. A good classification system uses standardized names.
6. *Acer rubrum* is the scientific name for the red maple. *Acer* is the species name for this organism.
7. The largest taxa is the species.
8. Several families of similar organisms make up an order.

Word Relationships

A. *In each of the following sets of terms, three of the terms are related. One term does not belong. Determine the characteristic common to three of the terms and then identify the term that does not belong.*

1. family, phylum, group, species
2. plants, animals, fungi, prokaryotes
3. biochemistry, cytochrome c, DNA and RNA, height
4. Monera, Protista, Fungi, Carnivora

B. *An analogy is a relationship between two pairs of words or phrases generally written in the following manner: a:b::c:d. The symbol : is read "is to," and the symbol :: is read "as." For example, cat:animal::rose:plant is read "cat is to animal as rose is to plant."*

In the analogies that follow, a word or phrase is missing. Complete each analogy by providing the missing word or phrase.

5. genus:species::family:_____
6. Darwin:evolution::Linnaeus:_____
7. orders:classes::phyla:_____
8. biochemistry:cytochrome *c*::homologous organ:_____

CONCEPT MASTERY

Use your understanding of the concepts developed in the chapter to answer each of the following in a brief paragraph.

1. Why were some of the early classification systems difficult to use?
2. What are three characteristics of a good classification system?
3. List the taxa in the classification system in current use from the smallest to the largest.
4. How does a workable classification system promote scientific understanding?
5. Suppose an organism had three common names in different parts of the United States. How might these names lead to confusion?

CRITICAL AND CREATIVE THINKING

Discuss each of the following in a brief paragraph.

1. **Making comparisons** In what ways was the classification system developed by Linnaeus an advantage over previous classification systems?
2. **Applying technology** How has the development of new technologies changed the ways we classify organisms?
3. **Applying concepts** Suppose you discovered a new single-celled organism. This organism had a nucleus, mitochondria, and a giant chloroplast. In what kingdom would you place this organism? What are your reasons?
4. **Making inferences** It has been said that organisms decide which individuals belong to their species and which do not. What does this statement mean?
5. **Assessing concepts** Libraries use the Dewey Decimal System to group books by similarities. How do the major groupings in this system help you locate research materials more quickly?
6. **Using the writing process** It has been estimated that there are more unknown organisms in the tropical rain forests than there are known organisms in the world. Scientists are concerned that these rain forests might be destroyed before the organisms in them can be classified. Write an editorial for a television news program protesting the destruction of rain forests. Offer reasons why rain forests should be protected.