Name _____ **CLASSIFICATION**

Section 14.1 The Concept of Classification

In your *textbook*, read *about* the need for *classifying organisms* and *binomial nomenclature.*

Circle the letter of the choice that best completes the statement.

1. The science of classification is called
   a. biology. b. zoology.
   c. taxonomy. d. taxa.

2. The following items can be classified.
   a. any system of classification
   b. any differences between organisms
   c. any group of related objects
   d. any group of unrelated objects

3. A classification system for organisms
   a. ensures that biologists know about new forms of life.
   b. provides guidance for explorers of marine caves and other habitats.
   c. allows unfamiliar organisms to be identified and assigned names on a logical basis.
   d. causes biologists to make mistakes in classifying newly discovered organisms.

4. Unlike common names, scientifically accepted names
   a. vary from country to country.
   b. vary from continent to continent.
   c. are the same all over the world.
   d. are the same in all countries where most people can read and write.

Answer the following questions.

5. On what bases did Aristotle classify plants and animals?

6. On what was the classification scheme that Linnaeus devised based?

7. How is the system of *binomial nomenclature* used to classify living organisms?

CLASSIFICATION

Section 14.1 The Concept of Classification continued

In your textbook, read about determining relationships.

Complete each statement.

8. The _____ showed that horses, tapirs, and rhinoceroses evolved from a common ancestor.

9. Scientists used _____ to establish that sea lions, seals, and walruses belong to the same group.

10. The ancestry of the horseshoe crab, once thought to be a true crab but later found to be related to the spiders, was determined through the use of _____.

11. The conclusion that guinea pigs do not share a common ancestry with rodents was reached by scientists who found differences in the _____ of guinea pigs and rodents.

12. _____ can be used to determine when two organisms began to evolve from a common ancestor.

13. To classify organisms, modem taxonomists depend on _____, _____, _____, and _____.

For each statement below, write <u>true</u> or <u>false.</u>

_____14. Each taxon can be thought of as representing one step in an organism's phylogeny.

_____15. The original classification of the giant panda as a bear was based on structure.

_____16. DNA studies, comparison of opposable thumbs, biochemical comparisons of enzymes and other proteins, and fossil evidence were used to establish the evolutionary histories of the bear and the raccoon.

_____17. A phylogenetic diagram shows the evolution and mating habits of organisms with common ancestors.

Name _____ **CLASSIFICATION**

Section 14.2 A System of Classification

In your textbook, read about taxa and examples of classification.

1. Label the center column in the chart below with the seven levels of classification, or taxa, of animals. Start at the top with the broadest taxon.

Human	TAXA	Grasshopper

2. In the first column of the chart above, write the seven taxa used to classify a human. In the last column, write the taxa used to classify a grasshopper. (Use *Table* 14.1 on page 377 of your biology textbook to help you.)

3. What information, missing from your completed chart, represents a signifiqmt difference between humans and grasshoppers?

For each item in Column A, write the letter of the matching item in Column B.

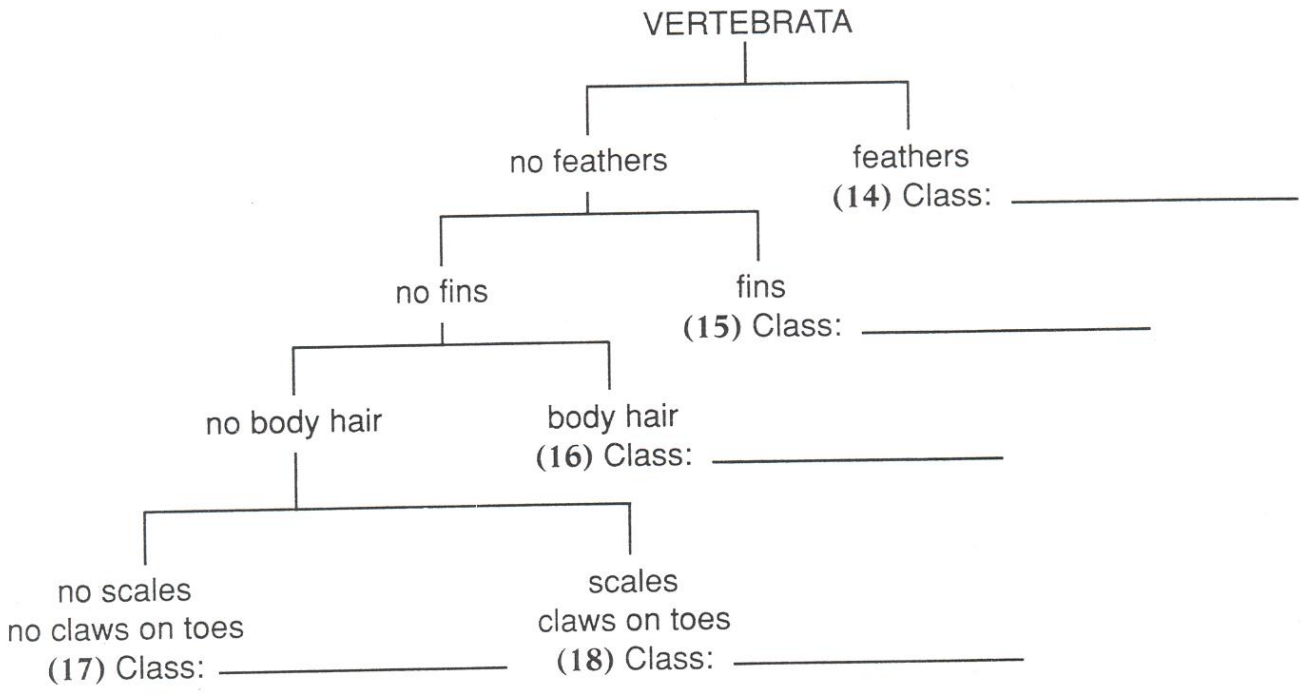
Column A	Column B
_____4. species of human	a. Primates
_____5. kingdom of bald eagle	b. Hominidae
_____6. kingdom of rose	c. Vertebrata
_____7. genus of dog	*d. Homo sapiens*
_____8. phylum of bald eagle	e. Insecta
_____9. class of chimpanzee	f. Animalia
_____10. class of ant	*g. Canis*
_____11. order of gorilla	h. Plantae
_____12. family of human	i. Chordata
_____13. subphylum of cat	j. Mammalia

Name _____ CLASSIFICATION

Section 14.2 A System of Classification continued

Examine the key to the classes of the subphylum, Vertebrata, animals with backbones. Fill in the missing class names. Use these choices:

Mammalia (mammals) Pisces (fish) Reptilia (reptiles) Aves (birds) Amphibia (amphibians)



9. Use the classification key above to determine the class of each animal listed below. Write the class to which each animal belongs.

a. trout _____

b. crocodile _____

c. cow _____

d. chicken _____

e. shark _____

f. kangaroo _____

g. lizard _____

i. toad _____

h. turtle _____

j. salmon _____

k. turkey _____

1. chameleon _____

m. snake _____

n. porpoise _____

o. alligator _____

p. eagle _____

Name _____ CLASSIFICATION

Section 14.2 A System of Classification continued

In your textbook, read about the kingdom problem.

Answer the following questions.

20. For classifying which organisms would a two-kingdom classification system, *plants* and *animals*, be reasonable?

21. What was the first great challenge to the two-kingdom classification scheme?

22. How is *Euglena* like both plants and animals?

23. What makes it difficult to classify mushrooms in a two-kingdom system?

24. Can structure alone be used to determine the kingdom in which an organism is classified? (Consider the sponge in your explanation.)

25. What is one argument in support of the proposed classification system based on six kingdoms?

Name the kingdom or kingdoms being described. (Use Figure 14-12 on page 381 of your biology textbook to help you.)

26. Style of spore formation helps classify members of this kingdom.

27. In most phyla within this kingdom, cells are organized into tissues that make up organs.

28. Organisms in this kingdom sometimes form colonies of clumps or filaments.

29. Organisms in these kingdoms are classified in divisions, rather than in phyla.

30. This kingdom contains organisms that are like both plants and animals.

CLASSIFICATION

Chapter 14 Vocabulary

Review the new words in Chapter* 14 *of your textbook.

Use the terms in the list below to complete the paragraphs. You will not use some terms. You will use others more than once.

binomial nomenclature
class
family
genus
kingdom
order
phylogeny
phylum
species
taxa
taxonomy

(1)_____ is the science of classifying organisms into categories. The categories are known as (2)_____. These categories are arranged from most specific to most general. The most specific classification into which an organism is placed is called the (3)_____. The next category of classification is the (4)_____ of the organism. Next, in degree of generality, is the (5)_____, followed by the (6)_____.The next level of generality is the (7)_____, followed by the (8}_____ The final, and most general category into which the organism is classified is called the (9)_____.

In this system for naming and classifying organisms, referred to as (10)_____, every organism is given a two-word name. The first word, a Latin noun, names the (11)_____of the organism. The second word, a Latin adjective, describes some specific characteristic of the organism. The two words together name the exact (12)_____ of the organism.

Fill in each box of the following diagram with the name of one level of classification for organisms. Begin at the left with the most general category, and end with the most specific.