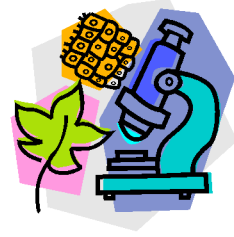


Roland-Story Biology Class
Chapter 14 Study Guide
Categories of Biological Classification



Name _____

Section: Categories of Biological Classification

Complete each statement by writing the correct term or phrase in the space provided.

1. The science of naming and classifying organisms is called _____.
2. The Greek philosopher and naturalist Aristotle grouped plants according to their _____ similarities.
3. Linnaeus's two-word system for naming organisms is called _____.
4. The basic biological unit in the Linnaean system of biological classification is _____.
5. A(n) _____ is a taxonomic category containing similar species.
6. The scientific name of the willow oak is _____.
7. The common name of *Quercus rubra* is the _____.

Complete each statement by underlining the correct term or phrase in the brackets.

8. The first word of a scientific name is the [species / genus].
9. Oak trees are placed in the [species / genus] *Quercus*.
10. People in Great Britain call [*Erithacus rubicula* / *Turdus migratorius*] a robin.
11. The correct abbreviation of the scientific name for modern humans is
[*H. sapiens* / *h.s.*].

Study the following categories of classification. Determine the correct order of the categories from largest to smallest. Write the number of each category in the space provided.

- _____ 12. phylum
- _____ 13. class
- _____ 14. species
- _____ 15. family
- _____ 16. order
- _____ 17. kingdom
- _____ 18. genus
- _____ 19. domain

Read each question, and write your answer in the space provided.

20. How did biologists name a particular type of organism before the mid-1700s?

21. Explain how the genus and species name of an organism is properly written.

Section: How Biologists Classify Organisms

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

- _____ 1. According to the biological species concept, the members of the same species actually can
- a. interbreed.
 - b. have radically different characters.
 - c. have different scientific names.
 - d. converge.
- _____ 2. Modern biologists determine species by studying an organism's
- a. convergent evolution.
 - b. hybrid offspring.
 - c. features with respect to its evolutionary history.
 - d. population.
- _____ 3. Wolves and dogs are members of different species, but they
- a. can produce infertile offspring.
 - b. are reproductively isolated.
 - c. are unable to interbreed.
 - d. can produce fertile offspring.
- _____ 4. An example of an ancestral character of birds and mammals is
- a. feathers.
 - b. backbones.
 - c. mammary glands.
 - d. fur.
- _____ 5. How many species have been described so far?
- a. 1 million species
 - b. 1.5 million species
 - c. 5 million species
 - d. 10 million species
- _____ 6. The biological species concept cannot account for species that
- a. have hybrid offspring.
 - b. have large numbers of offspring.
 - c. reproduce sexually.
 - d. reproduce asexually.

Read each question, and write your answer in the space provided.

7. What is reproductive isolation?

8. What are hybrids?

In the space provided, explain how the terms in each pair are related to each other.

9. convergent evolution, analogous characters

10. cladistics, derived traits

Read each question, and write your answer in the space provided.

11. What is phylogeny?

12. Why must biologists be able to distinguish homologous traits from analogous traits?

13. What is a cladogram?

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

_____ 14. A great strength of cladograms is that they are

- a. complicated.
- b. simple.
- c. biased.
- d. objective.

_____ 15. Where does evolutionary systematics place birds?

- a. in the same class as reptiles
- b. in the same genus as mammals
- c. in their own class
- d. in their own genus

_____ 16. Evolutionary systematics allows biologists to classify organisms using all available evidence and

- a. cladistics.
- b. their own judgment.
- c. their knowledge of cladistics.
- d. their understanding of analogous features.

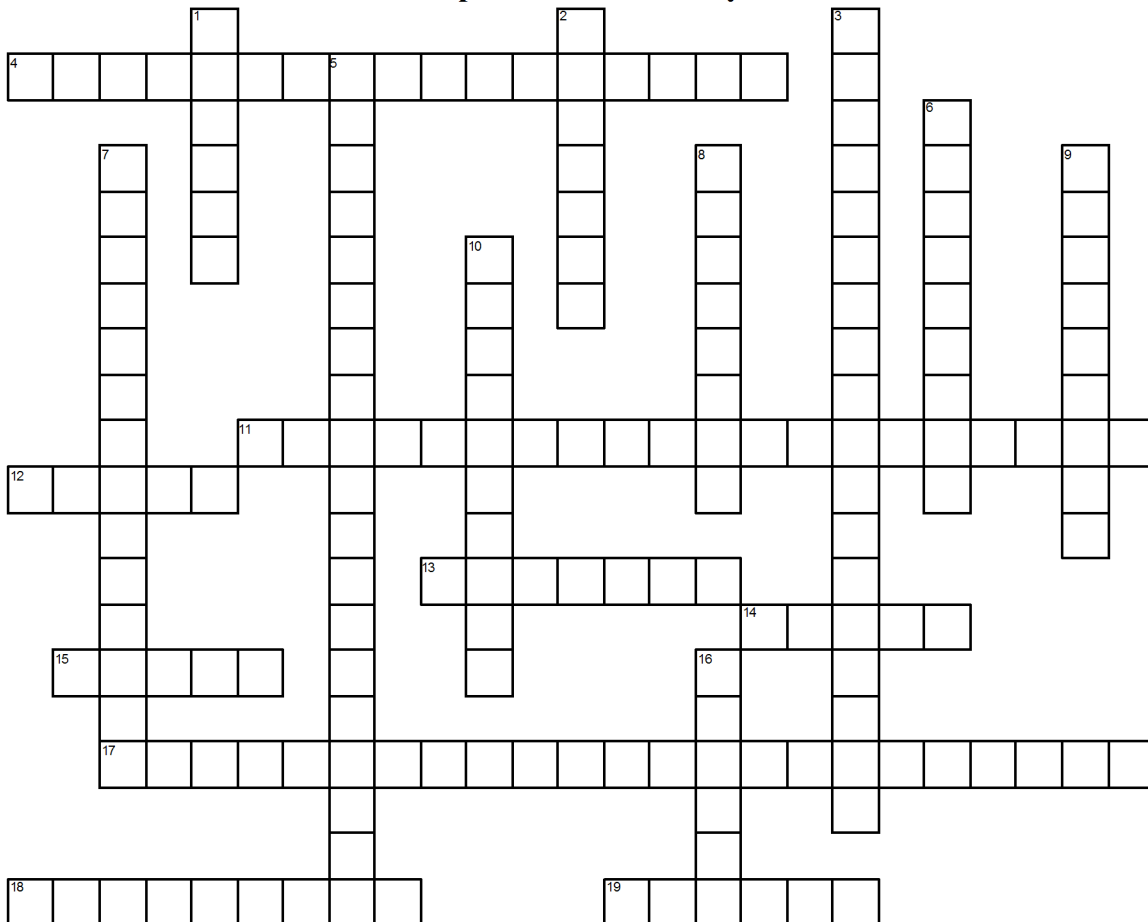
_____ 17. In evolutionary systematics, evolutionary relationships are displayed in a branching diagram called a

- a. helix.
- b. ladder.
- c. cladogram.
- d. phylogenetic tree.

_____ 18. A cladogram is based entirely on whether an organism has or does not have a(n)

- a. derived character.
- b. ancestral character.
- c. analogous character.
- d. homologous character.

Crossword puzzle of vocabulary terms



www.CrosswordWeaver.com

Clues on next page

ACROSS

- 4 a group of living things that can reproduce only with each other and that are usually contained in a certain area
- 11 a system for giving each living thing a two-word scientific name
- 12 the level of classification that is below the family and that contains similar species
- 13 the highest level of classification
- 14 the level of classification containing orders with common characteristics
- 15 the level of classification below the class and above the family
- 17 a method of classification in which different amounts of importance are given to characters
- 18 the evolutionary history of a species or taxonomic group
- 19 the level of classification that is below the order and above the genus

DOWN

- 1 in a taxonomic system based on analysis of rRNA
- 2 a character that evolved in an ancestor of one group but not in the ancestor of another group
- 3 a similarity that arises through convergent evolution
- 5 the process by which unrelated species become more similar as they adapt to the same kind of surrounding area
- 6 a character that evolved in a common ancestor of two different groups
- 7 a branching diagram that shows how organisms are related through evolution
- 8 the science of describing, naming, and classifying living things
- 9 a diagram that is based on patterns of shared, derived traits and that shows the evolutionary relationships between groups of organisms
- 10 a method of classification that uses shared derived characters and ancestry
- 16 the level of classification below the kingdom and above the class