

Section Review

Sorting It All Out

USING KEY TERMS

1. In your own words, write a definition for each of the following terms:
classification and *taxonomy*.

UNDERSTANDING KEY IDEAS

- _____ 2. The two parts of a scientific name are the names of the genus and the
- a. specific name.
 - b. phylum name.
 - c. family name.
 - d. order name.

3. Why do scientists use scientific names for organisms?

4. List the eight levels of classification.

5. Describe how a dichotomous key helps scientists identify organisms.

Section Review *continued*

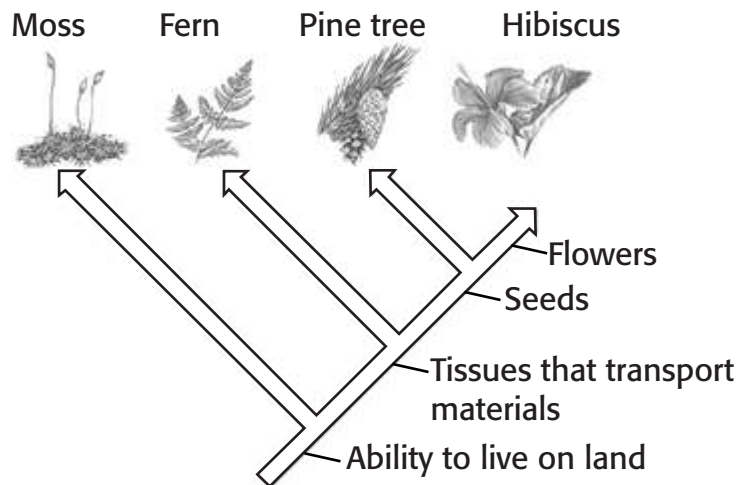
CRITICAL THINKING

6. Analyzing Processes Biologists think that millions of species are not classified yet. Why do you think so many species have not been classified yet?

7. Applying Concepts Both dolphins and sharks have a tail and fins. How can you determine if dolphins and sharks are closely related?

INTERPRETING GRAPHICS

Use the figure below to answer the questions that follow.



8. Which plant is most similar to the hibiscus?

9. Which plant is least similar to the hibiscus?

34. Animals depend on bacteria and fungi to recycle nutrients found in dead organisms.
35. sponges

Directed Reading B

SECTION: SORTING IT ALL OUT

- | | |
|--------------|-------------|
| 1. B | 12. classes |
| 2. B | 13. genera |
| 3. D | 14. species |
| 4. C | 15. C |
| 5. A | 16. B |
| 6. C | 17. D |
| 7. D | 18. B |
| 8. B | 19. B |
| 9. A | 20. C |
| 10. B | 21. D |
| 11. kingdoms | 22. A |

SECTION: DOMAINS AND KINGDOMS

- | | |
|----------------|----------------|
| 1. A | 15. protozoans |
| 2. D | 16. Eukarya |
| 3. C | 17. C |
| 4. D | 18. A |
| 5. B | 19. C |
| 6. B | 20. A |
| 7. B | 21. B |
| 8. A | 22. A |
| 9. C | 23. C |
| 10. D | 24. D |
| 11. C | 25. C |
| 12. eukaryotes | 26. B |
| 13. protists | 27. A |
| 14. algae | 28. C |

Vocabulary and Section Summary

SECTION: SORTING IT ALL OUT

- classification: the division of organisms into groups, or classes, based on specific characteristics
- taxonomy: the science of describing, naming, and classifying organisms
- dichotomous key: an aid that is used to identify organisms and that consists of the answers to a series of questions

SECTION: DOMAINS AND KINGDOMS

- Archaea: in a modern taxonomic system, a domain made up of prokaryotes (most of which are known to live in extreme environments) that are distinguished from other prokaryotes by differences in their genetics and in the make up of their cell wall; this domain aligns with the traditional kingdom Archaeobacteria
- Bacteria: in a modern taxonomic system, a domain made up of prokaryotes that usually have a cell wall and that usually reproduce by cell division; this domain aligns with the traditional kingdom Eubacteria
- Eukarya: in a modern taxonomic system, a domain made up of all eukaryotes; this domain aligns with the traditional kingdoms Protista, Fungi, Plantae, and Animalia
- Protista: a kingdom of mostly one-celled eukaryotic organisms that are different from plants, animals, bacteria, and fungi
- Fungi: a kingdom made up of nongreen, eukaryotic organisms that have no means of movement, reproduce by using spores, and get food by breaking down substances in their surroundings and absorbing the nutrients
- Plantae: a kingdom made up of complex, multicellular organisms that are usually green, have cell walls made of cellulose, cannot move around, and use the sun's energy to make sugar by photosynthesis
- Animalia: a kingdom made up of complex, multicellular organisms that lack cell walls, can usually move around, and quickly respond to their environment

Section Review

SECTION: SORTING IT ALL OUT

- Sample answer: Classification is grouping things according to similar characteristics. Taxonomy is the science of classifying and naming organisms.
- A

3. Sample answer: Scientists use scientific names for organisms to be clear and precise when they refer to a living thing.
4. domain, kingdom, phylum, class, order, family, genus, and species
5. Sample answer: A dichotomous key is organized into a series of pairs of descriptive statements. By matching an organism's characteristics to the statements in the key, one can identify unknown organisms.
6. Sample answer: Before being classified, organisms need to be discovered and then studied. Both discovery and study take time. Scientists are discovering and classifying organisms often, but it is a slow process.
7. Sample answer: I could compare many characteristics to see if the characteristics are shared between dolphins and sharks. For example, I could ask: "Do dolphins and sharks both have gills?" If the answer is no, because one animal has gills and the other animal doesn't have gills, then dolphins and sharks would not be very closely related, even though they have fins and similar body shapes.
8. pine tree
9. moss
5. Protista are single-celled or simple multicellular organisms including *protozoans* and *algae*. Fungi are multicellular organisms that do not perform photosynthesis and do not eat food, but that use digestive juices to break down substances. Plantae are complex, multicellular organisms with cell walls made of cellulose, that use the sun's energy to make sugar by photosynthesis. Animalia are complex, multicellular organisms without cell walls, that can move around and respond quickly to their environment.
6. after 5 h
7. Sample answer: Bacteria and fungi are both decomposers. Fungi and animals are both unable to make their own food.
8. Sample answer: Linnaeus may not have had access to microscopes that could allow him to study bacteria.
9. Sample answer: Plantae; Most plants are not consumers.

SECTION: DOMAINS AND KINGDOMS

1. Archaea are commonly found in extreme environments. Bacteria can be found in soil, water, and other non-extreme environments.
2. Answers may vary. Sample answer: The kingdom Plantae contains organisms that can make their own food. The kingdom Fungi contains organisms that can't make their own food.
3. A
4. Organisms in the domain Archaea are single-celled organisms without a nucleus. bacteria are prokaryotes that usually have a cell wall and usually reproduce by cell division. Organisms in the domain Eukarya have cells with a nucleus and membrane-bound organelles.
1. taxonomy
2. Archaea
3. Animalia
4. classification
5. Bacteria
6. A
7. D
8. A
9. B
10. B
11. C
12. Sample answer: Each species is unique, and scientific names make it possible for scientists to know specifically which organism is being discussed without the confusion of common names.
13. Taxonomists classify organisms based on their shared characteristics.
14. no, A bacterium is a prokaryote because it does not have a nucleus.
15. Sample answer: Some organisms, such as slime molds and mushrooms, have characteristics that neither plants nor animals have.
16. An answer to this exercise can be found at the end of the Teacher Edition.

Chapter Review