

Section 20-4 Plantlike Protists: Red, Brown, and Green Algae (pages 510-515)

Key Concepts

- What are the distinguishing features of the major phyla of multicellular algae?
- How do multicellular algae reproduce?

Introduction (page 510)

1. What are seaweeds? _____
2. What are the most important differences among the three phyla of multicellular algae?

Red Algae (page 510)

3. Red algae are members of the phylum _____.
4. Why are red algae able to live at great depths? _____

5. What pigments do red algae contain? _____

6. Which color of light are phycobilins especially good at absorbing?
a. red b. green c. yellow d. blue
7. Circle the letter of each sentence that is true about red algae.
a. They can grow in the ocean at depths up to 260 meters.
b. Most are unicellular.
c. All are red or reddish-brown.
d. Coralline algae play an important role in coral reef formation.

Brown Algae (page 511)

8. Brown algae are members of the phylum _____.
9. What pigments do brown algae contain? _____

Match each structure with its description.

Structure	Description
_____ 10. Holdfast	a. Flattened stemlike structure
_____ 11. Stipe	b. Gas-filled swelling
_____ 12. Blade	c. Structure that attaches alga to the bottom
_____ 13. Bladder	d. Leaflike structure

14. Where are brown algae commonly found growing? _____

15. What is the largest known alga? _____

Green Algae (pages 511–512)

16. Green algae are members of the phylum _____.
17. What characteristics do green algae share with plants? _____

18. What do scientists think is the connection between mosses and green algae?

19. The freshwater alga *Spirogyra* forms long threadlike colonies called
 _____.
20. How can the cells in a *Volvox* colony coordinate movement? _____

21. "Sea lettuce" is the multicellular alga _____.

Reproduction in Green Algae (pages 512–514)

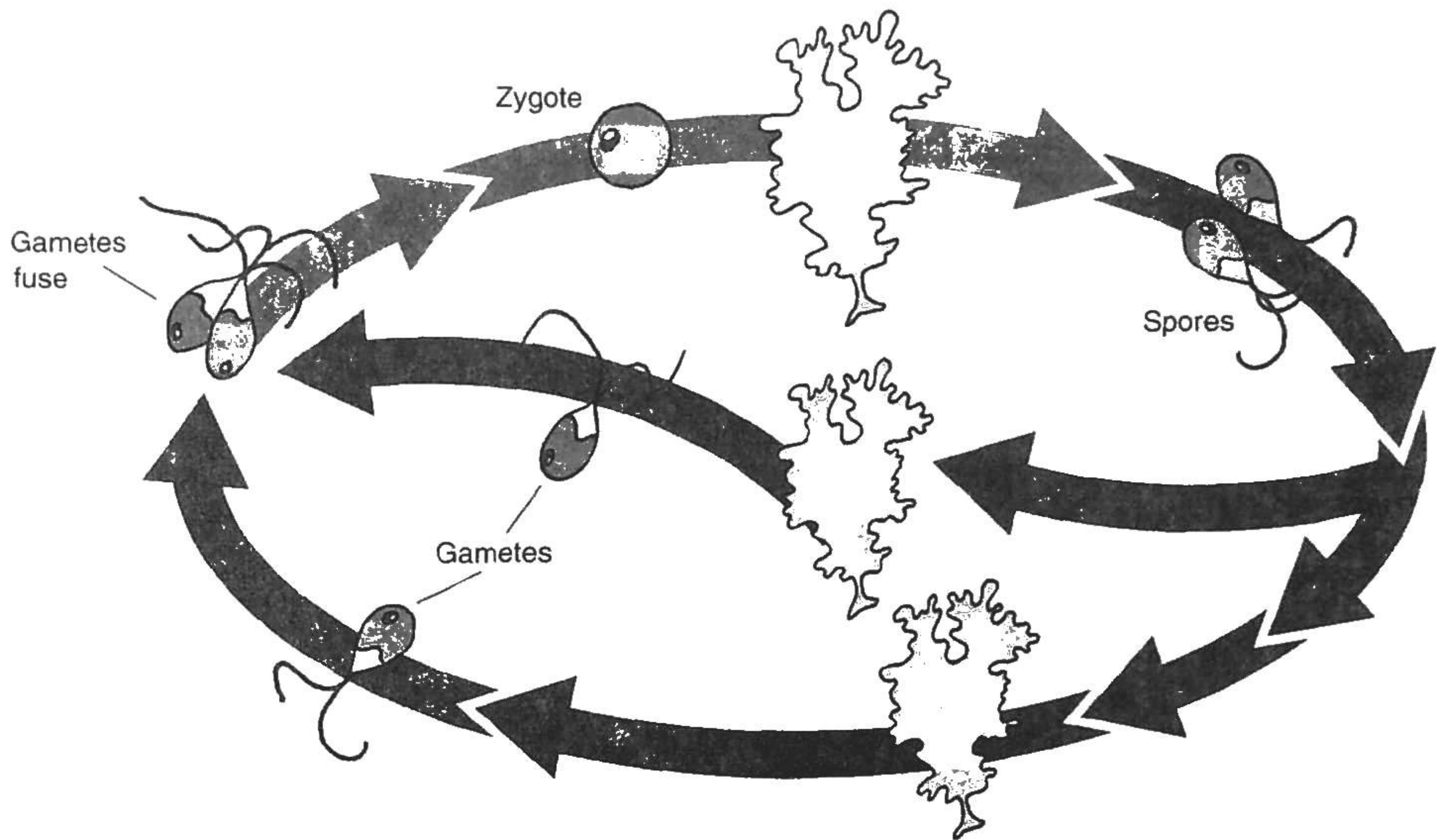
22. What occurs in the process known as alternation of generations? _____

23. The single-celled *Chlamydomonas* reproduces asexually by producing
 _____.
24. Circle the letter of each sentence that is true about sexual reproduction in *Chlamydomonas*.
- a. If conditions become unfavorable, cells release gametes.
 - b. Paired gametes form a diploid zygote.
 - c. A zygote quickly grows into an adult organism.
 - d. The gametes are called male and female.
25. Complete the table about the generations in an organism's life cycle.

GENERATIONS IN A LIFE CYCLE

Generation	Definition	Diploid or Haploid?
	Gamete-producing phase	
	Spore-producing phase	

26. Complete the life cycle of *Ulva* by labeling the sporophyte, the male gametophyte, and the female gametophyte. Also, label the places where the processes of fertilization, mitosis, and meiosis occur.



Human Uses of Algae (page 515)

27. Why have algae been called the "grasses" of the sea? _____

28. Through photosynthesis, algae produce much of Earth's _____.

29. What is the compound agar derived from, and how is it used? _____
