

Section 22–3 Seedless Vascular Plants (pages 560–563)

Key Concepts

- How is vascular tissue important to ferns and their relatives?
- What are the characteristics of the three phyla of seedless vascular plants?
- What are the stages in the life cycles of ferns?

Evolution of Vascular Tissue: A Transport System (page 560)

1. What is vascular tissue? _____

2. What kind of cells did the first vascular plants have that were specialized to conduct water? _____
3. Circle the letter of each sentence that is true about tracheids.
 - a. They are hollow cells.
 - b. They are connected end to end.
 - c. Their thick cell walls resist pressure.
 - d. They are the key cells of phloem.
4. What is the function of xylem? _____

5. What is the function of phloem? _____

6. Is the following sentence true or false? Phloem and xylem cannot move water and nutrients against the force of gravity. _____
7. What is lignin? _____

Ferns and Their Relatives (pages 561–562)

8. Complete the table about plant structures.

PLANT STRUCTURES

Structure	Description
Roots	
Leaves	
Stems	

9. Spore-bearing vascular plants include what three types of plants?
a. _____
b. _____
c. _____
10. Is the following sentence true or false? Vascular plants have true roots and stems.

11. The fossilized remains of ancient forests of club mosses exist today as huge beds of _____.
12. Circle the letter of each structure a horsetail has.
a. stems b. cones c. leaves d. roots
13. Ferns are members of phylum _____.
14. What are rhizomes? _____

15. The large leaves of ferns are called _____.
16. Fronds grow from what fern structures? _____
17. In what kind of habitats are ferns most abundant? _____

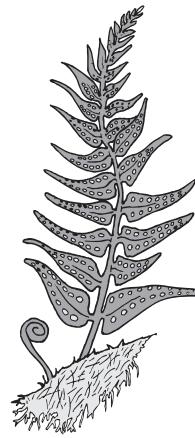
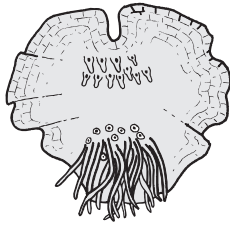
Life Cycle of Ferns (pages 562–563)

18. What is the dominant stage in the life cycle of ferns and other spore-bearing vascular plants? _____

19. Fern sporophytes produce haploid spores on the underside of their fronds in tiny containers called _____.
20. What are sori? _____

21. Are the spores of ferns haploid or diploid? _____

22. Label each drawing of a fern as either the sporophyte or the gametophyte.



23. Where are the antheridia and archegonia found in ferns? _____

24. Why does fertilization in ferns require at least a thin film of water? _____

25. Circle the letter of each sentence that is true about the life cycle of ferns.

- a. The zygote grows into a new gametophyte.
- b. The sporophyte is a heart-shaped, green structure.
- c. Fern sporophytes often live several years.
- d. When spores germinate, they grow into haploid gametophytes.