

Name: _____

AP Biology

Chapter 26 Active Reading Guide

The Colonization of Land by Plants

Section 1

1. Plants colonized land about 500 million years ago. Which group of algae is believed to be the ancestors of land plants?
2. Perhaps you answered *green algae* to question 1, which would be correct, or *charophytes*, which are a lineage of green algae and a more precise answer that is also correct. Whatever your response was, modify your answer above to include the other term. Read this section and you will review a number of traits of plants that they share with various groups of algae. We are most interested in those adaptations that are unique to plants and enabled life on land. One trait that is shared with the *charophytes* is *sporopollenin*. What is it, and why is it important?
3. Study Figure 26.6, which shows the four key traits that appear in nearly all land plants but not in the charophytes. You are about to encounter a large new vocabulary. We will use it through the next few chapters, so it is essential to master. Let's begin by just defining the terms.

alternation of generation:

sporophyte:

gametophyte:

fertilization:

zygote:

spore:

4. What is made by the *gametophyte* generation?
5. What is made by the *sporophyte* generation?
6. Where does meiosis occur?
7. In animals, the gametes are formed by meiosis. However, in plants, what cells are formed by meiosis?
8. How are spores dispersed?
9. How does the sperm reach the egg?
10. How do mosses absorb water? How is it distributed?
11. Which moss generation is *dominant*?

Section 3 (SKIP Section 2)

12. Like the Bryophyta, ferns are most common in damp environments. What feature of their reproduction requires them to live in a moist habitat?
13. What are the two types of *vascular tissue*? What does each transport?
14. *Ferns* are vascular plants. Why can vascular plants grow to be very tall, but nonvascular plants are all tiny?

15. *Lignified* vascular tissue allows vascular tissues to grow very tall. How does this give vascular plants a competitive edge?

16. What are functions of *roots*?

17. What is the function of *leaves*?

Section 4

18. List five characteristics common to all seed plants.

1. _____
2. _____
3. _____
4. _____
5. _____

19. In seed plants, the evolutionary trend of gametophyte reduction continues. List four advantages the plant gains by the miniaturization of the gametophyte.

1. _____
2. _____
3. _____
4. _____

20. Heterospory indicates that the plant produces two kinds of spores: megaspores and microspores. Explain what each type of spore forms as it develops.

megaspore: _____

microspore: _____

21. Inside each _____, a female _____ develops from a megaspore and produces one or more _____.
22. A microspore develops into a _____ that consists of a male _____ enclosed within the pollen wall.
23. What is the purpose of pollination?

24. What are two advantages of pollen over free-swimming sperm?

25. What are three advantages of seeds over spores?

26. Explain what is occurring in Figure 26.20.

27. Figure 26.21 shows the examples of gymnosperms. The phylum Coniferophyta will most likely be most familiar to you. What are four examples of the Coniferophyta?

28. Concerning seeds, what is the difference between gymnosperms and angiosperms?

29. What is the specialized function of the flower?

30. Briefly give the function of each flower part.

Sepal: _____

Petal: _____

Stamen: _____

Anther: _____

Filament: _____

Carpel: _____

Stigma: _____

Style: _____

Ovary: _____

Ovule: _____

31. A fruit consists of a mature _____.

32. List the two functions of fruits.

33. What is the difference between cross-pollination and self-pollination? What is the evolutionary advantage of cross-pollination?