

CHAPTER

11

VOCABULARY & NOTES WORKSHEET

Introduction to Plants

By studying the Vocabulary and Notes listed for each section below, you can gain a better understanding of this chapter.

SECTION 1

Vocabulary

In your own words, write a definition for each of the following terms in the space provided.

1. cuticle _____

2. sporophyte _____

3. gametophyte _____

4. nonvascular plant _____

5. vascular plant _____

6. gymnosperm _____

7. angiosperm _____

Notes

Read the following section highlights. Then, in your own words, write the highlights in your ScienceLog.

- Plants use photosynthesis to make food. Plant cells have cell walls. Plants are covered by a waxy cuticle.
- The life cycle of a plant includes a spore-producing stage (the sporophyte) and a sex-cell-producing stage (the gametophyte).

Introduction to Plants, continued

- Plants probably evolved from a type of ancient green algae.
- Vascular plants possess xylem, which carries water and dissolved minerals, and phloem, which carries food molecules, such as sugar. Nonvascular plants do not have xylem and phloem and must depend on diffusion and osmosis to move materials.

SECTION 2

Vocabulary

In your own words, write a definition for each of the following terms in the space provided.

1. rhizoids _____

2. rhizome _____

Notes

Read the following section highlights. Then, in your own words, write the highlights in your ScienceLog.

- Mosses and liverworts are small, nonvascular plants. They are small plants because they lack xylem and phloem. Water is needed to transport sperm cells to eggs.
- Ferns, horsetails, and club mosses are vascular plants. They can grow larger than nonvascular plants. Ferns, horsetails, and club mosses need water to transport sperm cells to eggs.

SECTION 3

Vocabulary

In your own words, write a definition for each of the following terms in the space provided.

1. pollen _____

2. pollination _____

3. cotyledon _____

Introduction to Plants, continued

Notes

Read the following section highlights. Then, in your own words, write the highlights in your ScienceLog.

- Seed plants are vascular plants that produce seeds. The sperm cells of seed plants develop inside pollen.
- Gymnosperms are seed plants that produce their seeds in cones or in fleshy structures attached to branches. The four groups of gymnosperms are conifers, ginkgoes, cycads, and gnetophytes.
- Angiosperms are seed plants that produce their seeds in flowers. The two groups of flowering plants are monocots and dicots.

SECTION 4

Vocabulary

In your own words, write a definition for each of the following terms in the space provided.

1. xylem _____

2. phloem _____

3. epidermis _____

4. taproot _____

5. fibrous root _____

6. stomata _____

Introduction to Plants, continued

7. sepals _____

8. petals _____

9. stamen _____

10. pistil _____

11. stigma _____

12. ovary _____

Notes

Read the following section highlights. Then, in your own words, write the highlights in your ScienceLog.

- Roots generally grow underground. Roots anchor the plant, absorb water and minerals, and store food.
- Stems connect roots and leaves. Stems support leaves and other structures; transport water, minerals, and food; and store water and food.
- The main function of leaves is photosynthesis. Leaf structure is related to this function.
- Flowers usually have four parts—sepals, petals, stamens, and one or more pistils. Stamens produce sperm cells in pollen. The ovary in the pistil contains ovules. Each ovule contains an egg. Ovules become seeds after fertilization.

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CHAPTER REVIEW WORKSHEET

*Introduction to Plants***USING VOCABULARY**

To complete the following sentences, choose the correct term from each pair of terms listed below, and write the term in the space provided.

1. The _____ is a waxy layer that coats the surface of stems and leaves. (stomata or cuticle)
2. During the plant life cycle, eggs and sperm cells are produced by the _____. (sporophyte or gametophyte)
3. In vascular plants, _____ conducts water and minerals, and _____ conducts food molecules, such as sugar. (xylem/phloem or phloem/xylem)
4. Seedless vascular plants include ferns, horsetails, and _____. (club mosses or liverworts)
5. A _____ is a seed leaf found inside a seed. (cotyledon or sepal)
6. In a flower, the _____ are the male reproductive structures. (pistils or stamens)

UNDERSTANDING CONCEPTS**Multiple Choice**

7. Which of the following plants is nonvascular?
 - a. fern
 - b. moss
 - c. conifer
 - d. monocot
8. Coal formed millions of years ago from the remains of
 - a. nonvascular plants.
 - b. flowering plants.
 - c. green algae.
 - d. seedless vascular plants.
9. The largest group of gymnosperms is the
 - a. conifers.
 - b. ginkgoes.
 - c. cycads.
 - d. gnetophytes.
10. Roots
 - a. absorb water and minerals.
 - b. store surplus food.
 - c. anchor the plant.
 - d. All of the above
11. Woody stems
 - a. are soft, green, and flexible.
 - b. include the stems of daisies.
 - c. contain wood and bark.
 - d. All of the above

Introduction to Plants, continued

- 12. The veins of a leaf contain
 - a. xylem and phloem.
 - b. stomata.
 - c. epidermis and cuticle.
 - d. xylem only.
- 13. In a flower, petals function to
 - a. produce ovules.
 - b. attract pollinators.
 - c. protect the flower bud.
 - d. produce pollen.
- 14. Monocots have
 - a. flower parts in fours or fives.
 - b. two cotyledons in the seed.
 - c. parallel veins in leaves.
 - d. All of the above

Short Answer

15. Why are there no large moss plants?

16. What advantages does a seed have over a spore?

17. How is water important to the reproduction of mosses and ferns?

Introduction to Plants, continued

CONCEPT MAPPING

18. Use the following terms to create a concept map: *nonvascular plants, vascular plants, xylem, phloem, ferns, seeds in cones, plants, gymnosperms, spores, angiosperms, seeds in flowers.*

Introduction to Plants, continued



CRITICAL THINKING AND PROBLEM SOLVING

Write one or two sentences to answer each of the following questions:

19. Plants that are pollinated by wind produce much more pollen than plants that are pollinated by animals. Why do you suppose this is so?

20. If plants did not possess a cuticle, where would they have to live? Why?

21. Grasses do not have strong aromas or bright colors. How might this be related to the way these plants are pollinated?

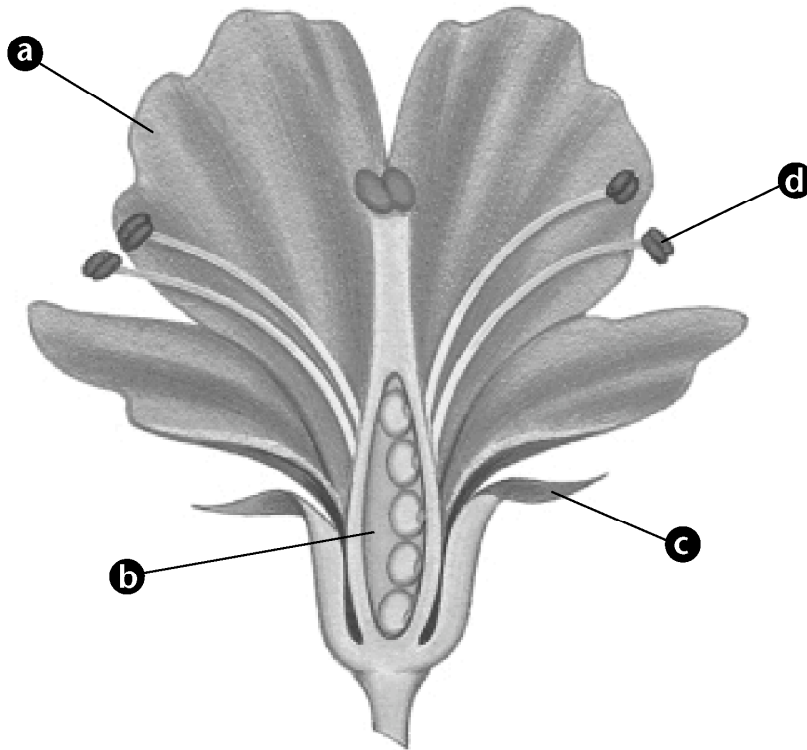
22. Imagine that a seed and a spore are beginning to grow in a deep, dark crack in a rock. Which reproductive structure—the seed or the spore—is more likely to survive and develop into an adult plant after it begins to grow? Explain your answer.

MATH IN SCIENCE

23. One year a maple tree produced 1,056 seeds. If only 15 percent of those seeds germinated and grew into seedlings, how many seedlings would there be?

INTERPRETING GRAPHICS

24. Examine the cross section of the flower to answer the following questions:



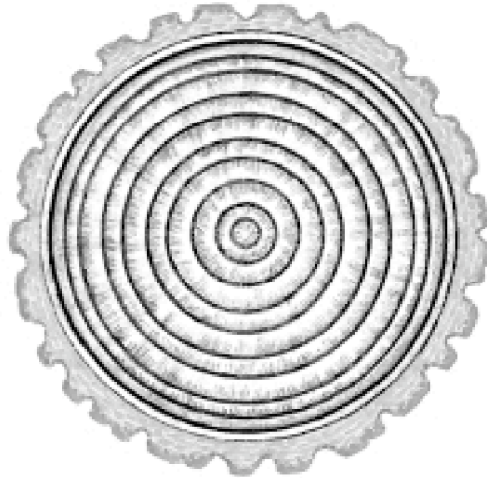
a. Which letter corresponds to the structure in which pollen is produced? What is the name of this structure?

b. Which letter corresponds to the structure that contains ovules? What is the name of this structure?

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Introduction to Plants, continued

25. In a woody stem, a ring of dark cells and a ring of light cells represent one year of growth. Examine the cross section of a tree trunk below, and determine the age of the tree.



NOW WHAT DO YOU THINK?

Take a minute to review your answers to the ScienceLog questions at the beginning of the chapter. Have your answers changed? If necessary, revise your answers based on what you have learned since you began this chapter. Record your revisions in your ScienceLog.