

Chapter
23
Plant Structure and Function
Chapter Assessment
Reviewing Vocabulary

Match the definition in Column A with the term in Column B.

Column A

- _____ 1. Plant tissue that transports water and minerals from the roots to the rest of the plant
- _____ 2. Tubular cell that is tapered at each end and that transports water throughout a plant
- _____ 3. Tissue that gives rise to lateral roots
- _____ 4. A responsive movement of a plant that is not dependent on the direction of the stimulus
- _____ 5. Stalk that joins the leaf blade to the stem
- _____ 6. Any portion of the plant that uses or stores sugars
- _____ 7. Flattened parenchyma cells that cover all parts of the plant
- _____ 8. Tissue composed of living cells that transport sugars from the leaves to all parts of the plant
- _____ 9. Growth tissue that remains just behind the root tip
- _____ 10. Contains a nucleus and helps control movement through the sieve cell
- _____ 11. A plant's response to an external stimulus that comes from a particular direction
- _____ 12. A chemical that is produced in one part of an organism and transported to another part, where it causes a physiological change.
- _____ 13. Cell that surrounds and controls the opening of the stomata
- _____ 14. Photosynthetic tissue of a leaf
- _____ 15. Tissue in the root that can act as a storage area for food and water

Column B

- a. apical meristem
- b. companion cell
- c. epidermis
- d. guard cell
- e. hormone
- f. mesophyll
- g. nastic movement
- h. cortex
- i. pericycle
- j. petiole
- k. phloem
- l. sink
- m. tracheid
- n. tropism
- o. xylem

Understanding Main Ideas (Part A)

In the space at the left, write the letter of the word or phrase that best completes the statement or answers the question.

- _____ 1. To control water loss, the size of the stomata is reduced by the
a. xylem. b. phloem. c. cambium. d. guard cells.
- _____ 2. Xylem is vascular tissue that
a. is alive.
b. transports sugar from the leaves to all parts of the plant.
c. transports water and dissolved minerals from the roots to the leaves.
d. transports sperm to the eggs.
- _____ 3. Cells in the apical meristem that cause a root to grow longer are found
a. just behind the root tip. b. along the sides of the root.
c. at the top of the root. d. in the center of the root.
- _____ 4. What area is responsible for producing the cells that allow the roots and stems to increase in length?
a. apical meristem b. vascular meristem c. pericycle d. endodermis
- _____ 5. What is the primary function of plant leaves?
a. to support the plant b. to produce flowers
c. to take in water d. to trap sunlight for photosynthesis
- _____ 6. Where does most photosynthesis take place?
a. in the cells of the cortex b. in the spongy mesophyll
c. in the palisade mesophyll d. in the stomata
- _____ 7. The petiole and veins of a leaf contain the
a. apical meristem. b. epidermis. c. endodermis. d. vascular tissue.

In the space at the left, write **true** if the statement is true. If the statement is false, change the italicized word or phrase to make it true.

- _____ 8. A *root cap* is a tiny extension of a single epidermal cell that increases the surface area of the root and absorbs water, oxygen, and dissolved minerals.
- _____ 9. The loss of water from the stomata of the leaves is called *perspiration*.
- _____ 10. A *vessel element* is a tubular cell that transports water throughout the plant.

Understanding Main Ideas (Part B)

Answer the following questions.

1. What causes tree rings to form?

2. How do auxins promote cell elongation?

3. Explain why fruit kept in a closed container ripens more quickly than fruit left out in an open bowl.

4. How do guard cells prevent a plant from drying out?

5. What are the functions of a root?
