



Name _____

Period _____

Date _____

SECTION 21.3 | ROOTS AND STEMS
Study Guide

KEY CONCEPT

Roots and stems form the support system of vascular plants.

VOCABULARY

vascular cylinder	meristem	primary growth
root hair	fibrous root	secondary growth
root cap	taproot	

MAIN IDEA: Roots anchor plants and absorb mineral nutrients from soil.

In the space provided, sketch a root tip. Draw lines from the terms to label the sketch, and describe the function for each of the parts. Use Figure 21.7 and the text to fill in the diagram.

Sketch:

- 1. **Vascular cylinder** _____

- 2. **Apical meristem** _____

- 3. **Root cap** _____

4. How do root hairs help a plant?

5. What are root systems made of fine branches of about the same size called?

6. What are root systems that have one main root and can sometimes store food called?

7. Plants are not just soaking up water. They use energy to absorb _____ .

8. The increased concentration of ions in root cells causes _____ to move into the root.

9. An example of a mineral needed in large amounts is _____.

10. Other minerals, such as _____ , are needed in small amounts.

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Section 21.3 STUDY GUIDE CONTINUED

MAIN IDEA: Stems support plants, transport materials, and provide storage.

11. What are three functions of most stems?

12. Look at Figure 21.10. What are two plants whose stems store water?

13. What special adaptation do strawberry plant stems have?

14. What are two stems that grow underground?

15. What are four characteristics of herbaceous stems?

16. What is growth that makes stems grow taller or roots grow longer called?

17. What is growth that makes stems and roots of woody plants grow wider called?

18. What represents one year of growth on a tree ring?

Vocabulary Check

_____ 19. Tough covering on root tip

_____ 20. Unspecialized tissue of dividing cells

_____ 21. Houses xylem and phloem

_____ 22. Root system made of equal-sized roots

_____ 23. Growth pattern that increases height and length

_____ 24. Increases surface area of a root

_____ 25. Root system that reaches deep into the ground

_____ 26. Growth pattern that increases width