Plants • Guided Reading and Study

The Characteristics of Seed Plants (pp. 262–271)

This section tells about the characteristics of seed plants. It also describes the parts of a seed and the functions of leaves, stems, and roots.

Use Target Reading Skills

As you read, make an outline about seed plants that you can use for review. Use the red headings for the main topics and blue headings for the supporting ideas.

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What Is a Seed Plant? (pp. 262–263)

1. Circle the letter of each sentence that is true about seed plants.
   a. Seedless plants outnumber seed plants.
   b. Seed plants do not have vascular tissue.
   c. Seed plants use seeds to reproduce.
   d. All seed plants have roots, leaves, and stems.

2. In seed plants, the plants that you see are in the **sporophyte** stage of the life cycle. The **gametophyte** stage is microscopic.

3. In what two ways does vascular tissue help seed plants to live on land?
   a. **Helps support plants**
   b. **Transports food, water and minerals through plants**

4. Circle the letter of the vascular tissue through which food moves.
   a. xylem
   b. phloem
   c. roots
   d. stems

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5. Circle the letter of the vascular tissue through which water moves.
   a. xylem  
   b. phloem  
   c. roots  
   d. stems

6. Food made in the plant’s leaves travels to the roots and stems.

7. Water and nutrients absorbed by the plant’s roots travel to the stems and leaves.

8. What is a seed?
   A seed is a plant structure that contains a young plant inside a protective covering.

9. Is the following sentence true or false? Pollen delivers sperm cells directly near the eggs. **TRUE**

**How Seeds Become New Plants** (pp. 264–266)

Match the part of the seed with its function.

<table>
<thead>
<tr>
<th>Seed Part</th>
<th>Function</th>
</tr>
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<tbody>
<tr>
<td>B 10. embryo</td>
<td>a. Keeps the seed from drying out</td>
</tr>
<tr>
<td>C 11. cotyledon</td>
<td>b. Young plant that develops from the fertilized egg</td>
</tr>
<tr>
<td>A 12. seed coat</td>
<td>c. A seed leaf that sometimes stores food</td>
</tr>
</tbody>
</table>

13. What do seeds need to develop into a new plant? **Seeds need light, water, and nutrients.**

14. Is the following sentence true or false? Seeds can begin to grow in any place they land. **FALSE**
15. Complete the concept map to show ways that seeds are dispersed.

- Seeds disperse
- by
  - Animals
  - Seed falls out of plant
  - Water
  - Wind

16. What is germination?

Sprouting of the Embryo out of a seed.

17. Circle the letter before each sentence that is true about germination.
   a. All seeds germinate immediately after they are dispersed.
   b. The embryo uses its stored food to begin to grow.
   c. First, the embryo’s leaves and stem grow upward.
   d. Seeds that are dispersed far away from the parent have a better chance of survival.

18. List three functions of roots.
   a. Anchor plants in ground.
   b. Absorb water and minerals from the soil.
   c. Store food.
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19. Look at the two types of root systems illustrated below. Label the roots as taproot or fibrous roots.

![Root Systems](image)

Match the root structure with its function.

<table>
<thead>
<tr>
<th>Root Structure</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>B 20. root cap</td>
<td>a. Moves food to the roots and other parts of plant</td>
</tr>
<tr>
<td>D 21. root hairs</td>
<td>b. Protects the root from injury during growth</td>
</tr>
<tr>
<td>A 22. phloem</td>
<td>c. Moves water and minerals to the stems and leaves</td>
</tr>
<tr>
<td>C 23. xylem</td>
<td>d. Increase the amount of water and minerals absorbed by the root</td>
</tr>
</tbody>
</table>

24. Circle the letter of the cell layer that produces new phloem and xylem.
   - a. heartwood
   - b. sapwood
   - c. bark
   - d. cambium

Stems (pp. 268–269)

25. List three functions of stems.
   - a. Carry substances between the leaves and roots
   - b. Support the plant and hold up leaves
   - c. Store food
The Characteristics of Seed Plants (continued)

26. Is the following sentence true or false? Herbaceous stems are hard and rigid and have an outer layer called bark. False

27. What is heartwood?

Inner layer of dead inactive xylem that provides support to woody stems

28. Circle the letter before the tissue that makes up a tree’s annual rings.

29. Is the following sentence true or false? One year’s growth of a tree is represented by one pair of light and dark rings in the tree’s stem. True

Leaves (pp. 270–271)

30. What role do leaves play in a plant?

Leaves capture the Sun’s energy and carry out the food making process of photosynthesis

31. cuticle

32. xylem

33. phloem

34. stomata

35. lower leaf cells

36. upper leaf cells

Function

a. Widely spaced cells allow carbon dioxide and oxygen to pass in and out of the leaf.

b. Carries water from the roots to the leaves

c. Waxy, waterproof coating that covers a leaf’s surface

d. Contain the most chloroplasts

e. Carries food made in the leaves to the rest of the plant

37. Is the following sentence true or false? The upper leaf cells are tightly packed to trap the energy in sunlight. True

38. The process by which water evaporates from a plant’s leaves is called transpiration.

39. Is the following sentence true or false? Stomata close to keep the plant from losing water. True

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