
Plants - General

After completing this section your should be able to:
1. Describe some of the ways that plants have had a direct effect on civilization and human history
2. Describe the “ecological value” of the plant kingdom
3. List and describe the major distinguishing characteristics of plants
4. Describe the advantages and the disadvantages of living on land
5. How do members of the plant kingdom differ from members of the other kingdoms of life

Be able to define or describe the following terms:
- terrestrial
- agriculture
- crop rotation
- pigment
- chlorophyll
- alternation of generations
- cellulose
- plastids
- lignin
- herbaceous
- woody
- annuals
- biennials
- perennials
- sporophyte
- gametophyte

Plant Cells

After completing this section your should be able to:
1. How do plant cells differ from the cells of members of the other kingdoms
2. Describe the general functions of the structures found in plant cells

Be able to define or describe the following terms:
- eucaryote
- multicellular
- cell wall
- cellulose
- vacuole
- plastids
- chloroplast
- starch

Plant Organs

After completing this section your should be able to:
1. Distinguish between and give some examples of vegetative organs and reproductive organs
2. How are plant organs different from animal organs
3. Describe the major structure and functions of roots stems and leaves
4. Name and describe some examples of modified roots, stems and leaves
5. Describe the following kinds of symbioses found in plant roots: mycorrhizae, root nodules, and root grafts; what are the benefits to the plant and the benefits to the symbiont

Be able to define or describe the following terms:
- vegetative organs
- reproductive organs
- roots
- mycorrhizae
- root nodules
- tap root
- fibrous root
- root hairs
- aerial roots
- epiphytes
- parasitic roots
- prop roots
- contractile roots
- root cap
- stems
- axillary bud
- lenticels
- vines
- spines
- rhizomes
- tubers
- runners
- petiole
- blade
- tendrils
- bulb
- insectivorous
- sporangia
- antheridia
- archegonia
- sperm
- egg
- cone
- flower
- petals
- stamen
- sepals
- petiole
- archegonia
- sperm
- egg
- cone
- flower
- petals

Plant Tissues

After completing this section your should be able to:
1. Distinguish between the three major kinds of plant tissues (or tissue systems) in terms of their structure and general functions
2. Give some examples of where in the plant you would expect to find each of the three plant tissues
3. What is the difference between plant tissues and plant organs

Be able to define or describe the following terms:
- vascular tissue
- ground tissue
- epidermis
- cuticle
- stomata
- trichomes
- root hairs
- cork
- xylem
- phloem
- gas exchange
- photosynthesis
Major Kinds or Groups of Plants

After completing this section your should be able to:
1. Name and describe the major identifying characteristics of the four different kinds of plants
2. Why is it true to say that mosses do not have any true plant organs
3. Describe the life cycle of mosses and ferns in terms of sporophyte and gametophyte and sexual and asexual reproduction
4. What role do mosses play in ecology
5. What is the difference between vascular and nonvascular plants
6. which major plant group(s) reproduce by: spores, egg and sperm, pollen, seeds, and fruits
7. Name a major plant group is the sporophyte the dominant form of the plant, explain
8. Name a major plant group is the gametophyte the dominant form of the plant
9. In what major plant group(s) does sexual reproduction require water; what group(s) do not require water for sexual reproduction
10. In which major plant groups is asexual reproduction the main way the plants produce offspring; in which groups is sexual reproduction the main way the plants produce offspring
11. Describe some examples of the “economic importance” of ferns and conifers
12. Describe some examples of the importance of flowering plants to civilization
13. Why is the evolution of vascular tissues such an important milestone in the history of plant life
14. Why is the evolution of pollen such an important milestone in the history of plant life
15. Why is the evolution of seeds such an important milestone in the history of plant life
16. Why is the evolution of fruits such an important milestone in the history of plant life

Be able to define or describe the following terms:

<table>
<thead>
<tr>
<th>Mosses</th>
<th>Ferns</th>
<th>Conifers</th>
<th>Flowering Plants</th>
</tr>
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<tbody>
<tr>
<td>nonvascular</td>
<td>vascular</td>
<td>seeds</td>
<td>flower</td>
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<tr>
<td>sporophyte</td>
<td>xylem</td>
<td>naked seeds</td>
<td>vascular bundles</td>
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<tr>
<td>gametophyte</td>
<td>phloem</td>
<td>woody tissue</td>
<td>monocot</td>
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<tr>
<td>rhizoids</td>
<td>seedless</td>
<td>needles</td>
<td>dicot</td>
</tr>
<tr>
<td>‘leaves’</td>
<td>leaf</td>
<td>epidermis</td>
<td>cortex</td>
</tr>
<tr>
<td>‘stem’</td>
<td>frond</td>
<td>resin ducts</td>
<td>pith</td>
</tr>
<tr>
<td>capsule</td>
<td>fiddlehead</td>
<td>cones</td>
<td>woody stems</td>
</tr>
<tr>
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<td>rhizome</td>
<td>staminate cones</td>
<td>periderm</td>
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<tr>
<td>archechonium</td>
<td>sori</td>
<td>ovulate cones</td>
<td>growth rings</td>
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<td>sperm</td>
<td>sporangia</td>
<td>pollen grain</td>
<td>bark</td>
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<tr>
<td>egg</td>
<td>indusium</td>
<td>ovule</td>
<td>ovary</td>
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<tr>
<td>rhizoids</td>
<td>prothallium</td>
<td>embryo</td>
<td>fruit</td>
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<td>ecological pioneers</td>
<td>gametophyte</td>
<td>seed coat</td>
<td>pollination</td>
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</table>
Plant Function: Growth, Flowering, Transport, Hormones, Etc

After completing this section you should be able to:
1. describe and give examples of the two major factors that affect how plants function
2. what is cambium and how is it related to plant growth
3. describe some examples of rapid plant movements and what factors control them
4. What are tropisms, describe some of the kinds of tropisms that plants show, specifically, what factors control each of these tropisms
5. how does a plant “know” when it is time to flower
6. describe some of the factors that help to determine when a seed will germinate
7. list and describe the major plant hormones and the roles each plays in plant physiology
8. describe and distinguish between transport of materials in the xylem and in the phloem; what is transported, how is it transported, how are they similar, how does transport in each differ, etc
9. describe some of the specific adaptations that plants have made to conserve water
10. List and describe the main functions of the major plant hormones discussed in class

Be able to define or describe the following terms:

- translocation
- transpiration
- stomata
- osmosis
- root pressure
- minerals
- phloem
- pressure flow
- hormones
- growth regulators
- florigen
- biological clock
- photoreceptors
- cohesion
- guard cells
- long day plants
Plant Ecology

After completing this section your should be able to:

Be able to define or describe the following terms: