

# AP BIOLOGY – PARADE THROUGH THE PLANTS

*Complete the questions using the chapters of your textbook.*

## CHAPTERS 29 & 30- Plant Diversity

1. Chart the four phyla of the plant kingdom. Include the common names of each, the approximate number of extant species, and the major characteristics.

a. \_\_\_\_\_

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b. \_\_\_\_\_

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c. \_\_\_\_\_

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\_\_\_\_\_

d. \_\_\_\_\_

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2. Why are Charophyceans thought to be ancestors of land plants?

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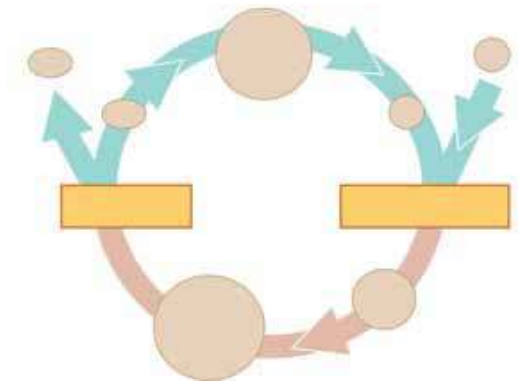
3. List several adaptations of land plants significant for terrestrial survival.

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4. Label the generic diagram to explain Alternation of Generations



5. Describe a few features common to Bryophytes.

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6. What is the dominate phase of the moss life cycle?

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7. List a couple of adaptations of Pteridophytes (ferns) not seen in Bryophytes.

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8. What is the dominate phase pf the fern life cycle?

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9. How is the reduced gametophyte an adaptation for seeded plants?

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10. What is the significance of the seed?

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11. What is the advantage of pollen?

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12. List the four phyla of gymnosperms. Which is the most common?

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13. Identify five differences between monocots and dicots.

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14. What is the adaptive value of the flower to plants?

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15. Describe the role of ovaries and ovules in the flowering plants.

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16. List several features of angiosperms that aid in seed dispersal.

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## CHAPTER 35- Plant Structure and Growth

1. List the basic plant organs with their functions.

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2. What is the adaptive value of root hairs?

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3. List several types of leaves and examples of their functions.

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4. List and indicate functions of several organelles unique to plant tissues.

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5. Give a brief description and example of the following plant tissues.

a. Xylem\_\_\_\_\_

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b. Phloem\_\_\_\_\_

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c. Parenchyma\_\_\_\_\_

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d. Collenchyma\_\_\_\_\_

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- e. Sclerechyma\_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- f. Epidermis/Protective\_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

6. List and describe the three primary growth tissues.

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\_\_\_\_\_

\_\_\_\_\_

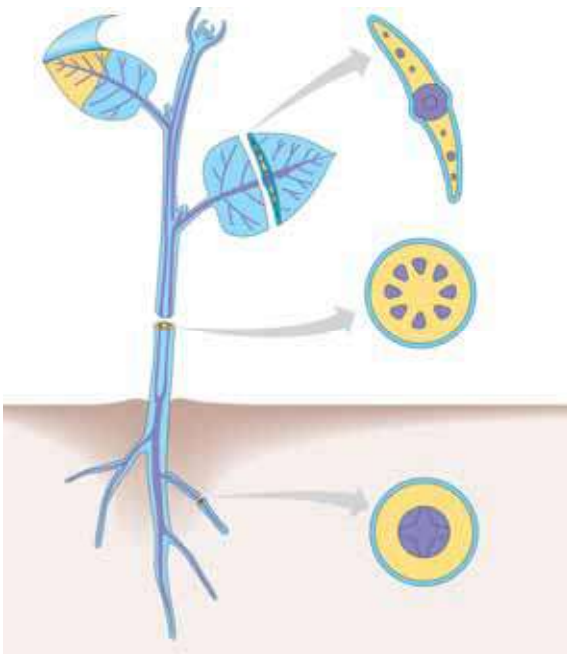
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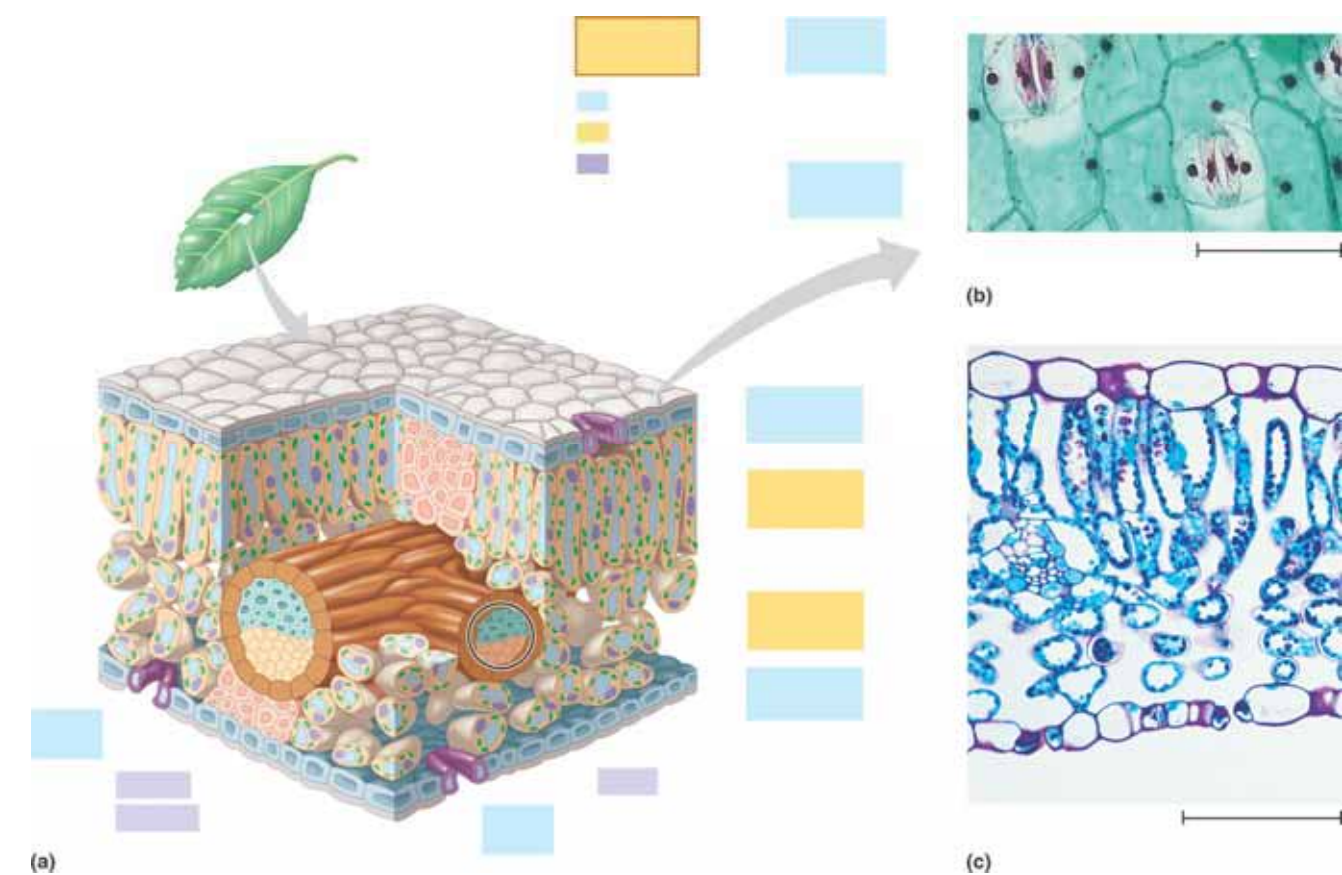
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7. Label the diagrams of the stems and indicate the functions of the tissues.



8. Label the Diagram of the leaf and indicate the function of the tissues.



9. What is the role of the stomata?

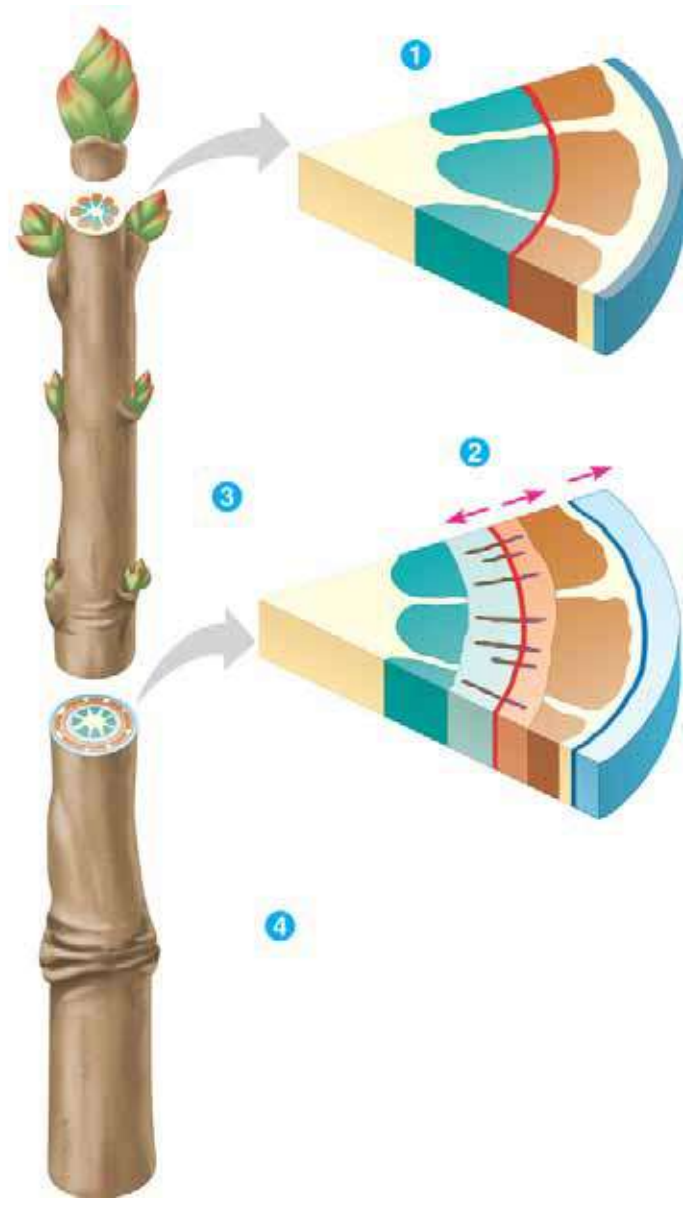
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10. Label the diagram of a cross section through a woody stem and indicate the functions of the tissues.

(a)





## CHAPTER 36- Transport in Plants

1. What is the role of each of the following in plant transport?

- a. Transpiration\_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- b. Xylem\_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- c. Phloem\_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

2. What is the trend in atmospheric CO<sub>2</sub> seasonally and over the past 50 years?

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3. How does chemiosmosis bring the following into the plant cell?

- a. Cations\_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- b. Anions\_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- c. Sucrose\_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

4. What is the mechanism that creates the gradient in chemiosmosis?

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5. What is believed to be responsible for the rapid water exchange in plant cells?

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6. Define the following methods of lateral transport.

a. Transmembrane\_\_\_\_\_

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b. Symplastic\_\_\_\_\_

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c. Apoplastic\_\_\_\_\_

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7. What is the role of the epidermis in the root?

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8. How do mycorrhizae help plants?

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9. Describe the mechanisms of water transport.

a. Transpiration\_\_\_\_\_

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b. Cohesion and Adhesion

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c. Root pressure

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10. What mechanism causes stoma to open when the guard cells are in “good conditions”?

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11. Describe the pressure flow mechanism of sugar transport.

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## CHAPTER 37- Plant Nutrition

1. How do nutrients enter plants?

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2. What is the difference between macronutrients and micronutrients?

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3. Why is magnesium important to plants?

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4. How do plants absorb cations from the soil?

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5. Why are root hairs important to plants?

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6. Describe the path of nitrogen from the atmosphere to plant protein. Include the role of each of the following.

a. Nitrogen-fixing bacteria

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b. Ammonifying bacteria

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c. Nitrifying bacteria

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d. Denitrifying bacteria

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7. Describe the following unique nutritional relationships.

a. Rhizobium bacteria & legumes

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b. Mycorrhizae

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c. Parasitic plants

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d. Carnivorous plants

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## CHAPTER 38- Plant Reproduction

1. When does the sporophyte and gametophyte generation begin in the typical angiosperm?

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2. Identify the general functions of the parts of a complete flower.

a. Sepal\_\_\_\_\_

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b. Petals\_\_\_\_\_

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c. Stamen\_\_\_\_\_

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d. Carpel\_\_\_\_\_

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3. Describe the two processes that produce the angiosperm's gametophyte.

a. Male\_\_\_\_\_

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b. Female\_\_\_\_\_

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4. What is meant by double fertilization?

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5. How is the seed embryo nourished?

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6. Sketch and label a dicot and monocot seed. Include the functions.

7. What does a seed need to germinate?

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8. Identify some asexual mechanisms for plant reproduction.

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9. Label the diagram of an idealized flower.





**CHAPTER 39- Control Systems in Plants**

1. How does light influence sprouting plants?

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2. Describe the steps of the signal transduction pathway.

a. Reception

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b. Transduction

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c. Response

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3. What did early experiments on photoperiodism demonstrate?

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4. What does auxin do in plant cells that cause elongation?

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5. Define apical dominance.

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6. Identify the two functions of gibberellins.

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7. Identify a few plant responses to ethylene.

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8. Are all wavelengths of light equal when it comes to phototropism? Explain.

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9. What are the two forms of phytochrome and how are they switched?

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10. When do short day plants flower?

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11. What happens when short day plants receive flashes of light?

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12. When do long day plants flower?

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13. What happens when long-day plants receive flashes of light?

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14. What may be a cause of root gravitropism?

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15. What is the mechanism that causes Mimosa leaves to close?

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