

Study Guide – Plant Parts and Plant Processes

- _____ plant part that anchors the plant and absorbs water and nutrients from soil
- _____ plant part that is the main support for the plant and transports water and nutrients throughout the plant
- _____ plant part that absorbs sunlight; where food production for the plant occurs
- _____ plant part where seeds are produced
- _____ the process where water is pushed into the plant through the roots and evaporates from the plant through the stomata
- _____ the process that aids in moving water throughout the plant and cools the plant as the water evaporates from the plant
- _____ the microscopic pores found mostly on the bottom surface of a leaf where carbon dioxide (CO₂) enters the leaf and water (H₂O) and Oxygen (O₂) exit the leaf
- _____ Name one gas that enters the stomata during photosynthesis
- _____ Name one gas that exits the stomata during photosynthesis
- _____ Name one gas that exits the stomata during transpiration
- _____ Can the gas given off during photosynthesis be collected? How?
- _____ Can the gas given off during transpiration be collected? How?
- _____ What will the stomata of a leaf do if the plant has plenty of water in it
- _____ What will the stomata of a leaf do if the plant is dehydrated? Why?
- _____ the name of the oval structure found in the leaves of a plant that contain a green pigment
- _____ the name of the green pigment found in the oval structures in a leaf cell
- _____ What is the name given to the sugar that is produced during photosynthesis?
- _____ What is the role of the sugar that is produced by the plant? Give 2 uses.
- _____ How do humans benefit from photosynthesis? Name 2 ways.
- _____ What are the 4 things that are necessary for a plant to have in order to photosynthesize?
- _____ During the process of photosynthesis, light energy is converted into _____ energy.
- _____ Write the chemical equation for photosynthesis.
- _____ What are the reactants (ingredients) in the chemical equation for photosynthesis?
- _____ What are the products in the chemical equation for photosynthesis?
- _____ What does the Greek prefix “photo” mean? (photograph, photograph, photosynthesis)
- _____ Do plants produce more Oxygen on a sunny day or a cloudy day? Why?
- _____ The process that takes place in animal cells where glucose (food) and Oxygen is converted into energy for the organism; Carbon Dioxide and Water are given off as waste products; this chemical equation is the exact opposite of the photosynthesis equation
- _____ Write the chemical equation for cellular respiration
- _____ The vascular tissue in the plant that transports water and minerals up the plant from the roots; one way flow only (up)
- _____ The vascular tissue in the plant that transports sugar and nutrients to all parts of the plant where needed; two way flow
- _____ the process where pollen is transferred from the anther of a flower to the sticky stigma of a flower
- _____ the process where pollen is transferred from the anther to the stigma on the same flower or a flower on the same plant-- this method reduces genetic diversity
- _____ the process where pollen is transferred from the anther of one flower to the stigma of a different flower on a different plant of the same species; increases genetic diversity
- _____ which method of pollination is more favorable for plant reproduction? Why?
- _____ If plants have short stamens that are found well below the stigma, which method of pollination do they most likely use? Can you explain why?
- _____ directional movement responses that occur in response to a directional stimulus; occurs in plants in order to increase survival
- _____ when plant roots grow downward in order to obtain water and nutrients from the soil
- _____ when plant stems grow toward the sunlight in order to increase the occurrence of photosynthesis
- _____ when a plant part moves or grows in response to touch or contact stimuli; Example- Touch Me Not plants –their leaves will fold up when you touch the leaf / plant tendrils will coil around a stake or “climb” up a wall to increase plant growth upward

Answers

1. Roots
2. Stem
3. Leaf
4. Flower
5. Transpiration
6. Transpiration
7. Stomata (stoma = plural)
8. Carbon Dioxide
9. Oxygen
10. Water
11. Yes, the oxygen can be collected. Submerge a plant in water, watch Oxygen bubbles rise from the plant; collect Oxygen in test tube as bubbles rise in the water...see diagram
12. Yes, the gas water vapor can be collected; put a glass bell jar over a plant and watch the water vapor condense on the glass jar...see diagram
13. Stomata will open, allowing some water vapor to escape
14. Stomata will close to keep water in
15. Chloroplast
16. Chlorophyll
17. Glucose
18. Used by plant to grow and reproduce
19. Provides oxygen that we breathe in; produces stored sugar (fruit) for us to eat
20. Carbon dioxide, Water, Chlorophyll, Sunlight
21. Chemical energy
22. $\text{CO}_2 + \text{H}_2\text{O} \longrightarrow \text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2$
23. CO_2 and H_2O
24. $\text{C}_6\text{H}_{12}\text{O}_6$ and O_2
25. Light
26. Sunny day
27. Cellular Respiration
28. $\text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2 \longrightarrow \text{CO}_2 + \text{H}_2\text{O}$
29. Xylem
30. Phloem
31. Pollination
32. Self-pollination
33. Cross pollination
34. Cross pollination
35. Cross Pollination
36. Tropisms
37. Geotropism
38. Phototropism
39. Thigmotropism

Word Bank of Answers for Study Guide – Plant Parts and Plant Processes

1. $C_6H_{12}O_6 + O_2 \longrightarrow CO_2 + H_2O$
2. $C_6H_{12}O_6$ and O_2
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23. Provides oxygen that we breathe in; produces stored sugar (fruit) for us to eat
24. Roots
25. Self-pollination
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