

Student Name: _____ Period: _____

Plant Nutrition and Transport

<http://bit.ly/2oa9j3S>

1. What kind of nutrition do plants rely upon?

2. What is the source of their:

- a. Carbon? _____
- b. Hydrogen and Oxygen? _____
- c. Nitrogen _____
- d. Phosphorus _____
- e. Sulfur _____

3. What are the two main parts of all plants?

4. What do they use CO₂ for?

5. What do they absorb through their roots?

6. Do plants conduct cellular respiration? Which cellular structure do they need to be able to perform that process?

7. Recap the meaning of monocot and dicot and name examples for each

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8. Sketch the cross section of a monocot root and a dicot root. Label the parts and highlight the parts that are arranged differently in monocots and dicots.

9. How do plants increase the surface area of absorption an anatomically?

10. What is the symbiotic relationship plants use to increase surface area for absorption?

11. Draw a sketch of the cross section of the plant stem. Label the parts and highlight the parts that are arranged differently in monocots and dicots.

12. Why is there a difference between the locations of the vascular bundles in roots and shoots?

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13. What is the difference between leaf structure in monocots and dicots?

14. Draw and label the cross section of the leaf

15. What are the different types of mesophyll cells and describe the differences in their function?

16. What is the casparian strip? What is its function?

17. Is there a similar structure that can be found between animal cells? (HINT: think about cell junctions in animal cells)

18. Define

a. Apoplastic absorption

b. Symplastic absorption

19. How does water move up the xylem?

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20. Describe a water molecule and explain how hydrogen bonds form.

21. Define

- a. adhesion
- b. cohesion
- c. capillary action

22. What is Xylem pull?

23. Describe the structure of the phloem and how does it differ from the xylem.

24. How does sugar move in the phloem?

25. What is the phloem "push"

26. Draw an illustrative picture of how sugar moves in the plant - what happens at different seasons? Why would there be a difference?
