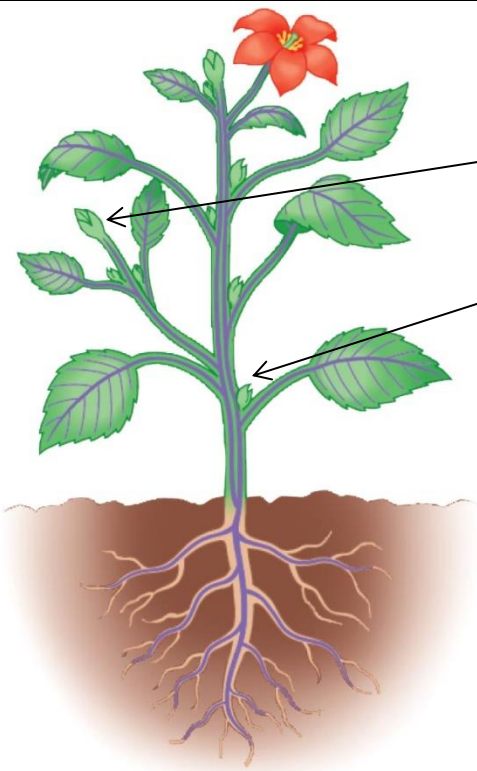
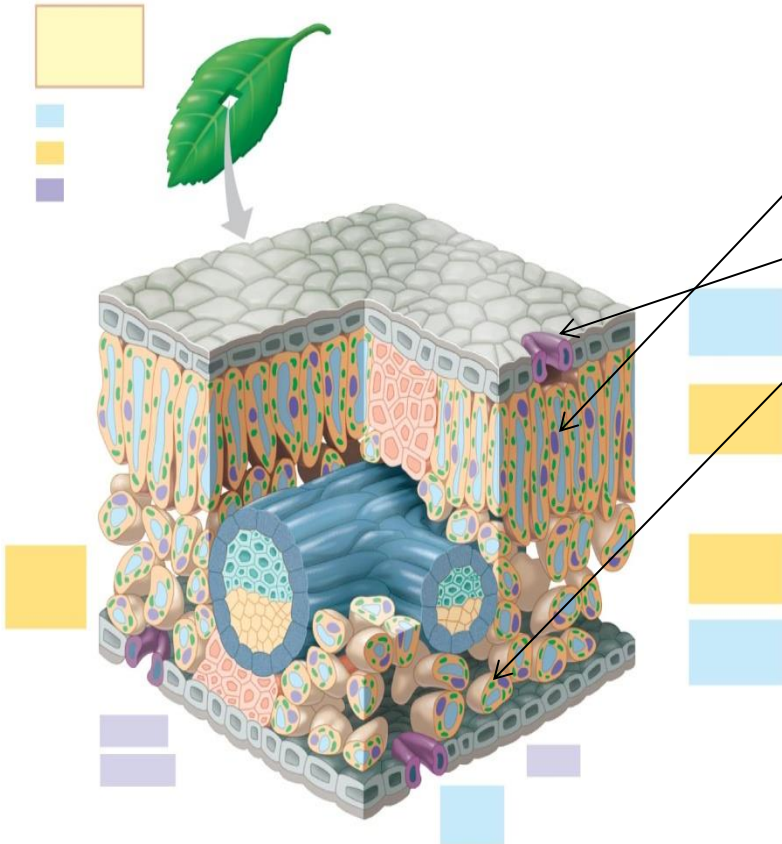


Ch35/36 Review Sheet



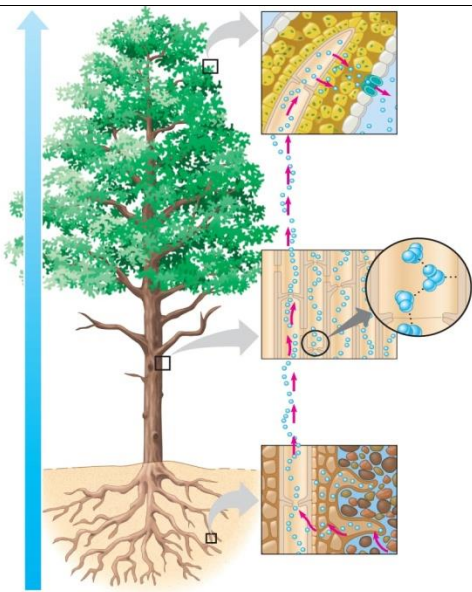
1. Label the root and shoot system of the plant. Then label one apical and axillary bud.
2. Explain the functions of the 3 major plant organs.
 - a. Roots – **absorption**
 - b. Stem – **transport**
 - c. Leaf - **photosynthesis**

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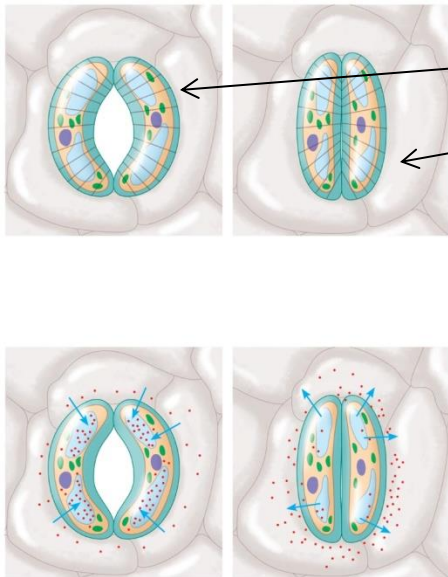
3. In the figure, label the following: palisade mesophyll, spongy mesophyll, and guard cells.
4. What do the guard cells control?
Opening and closing of the stomata
5. What is the purpose of the cuticle on a leaf?
Prevent water loss
6. Where would the stomata be located on a water lily plant?
On the top to continue to do gas exchange

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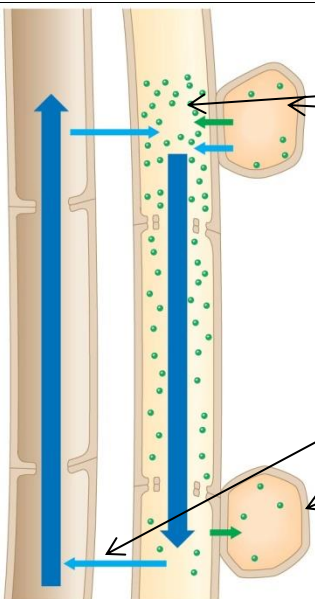
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7. Explain how the following processes help water move up the tree.
 - a. Hydrogen bonds:
Bond water molecules together and to other things
 - b. Water potential:
Soil has the lowest water potential and the air has the highest, so water will be pulled up the plant
 - c. Transpiration:
Water loss from the leaves means that another water molecule will be pulled into the roots
8. Water moves using **negative** pressure.



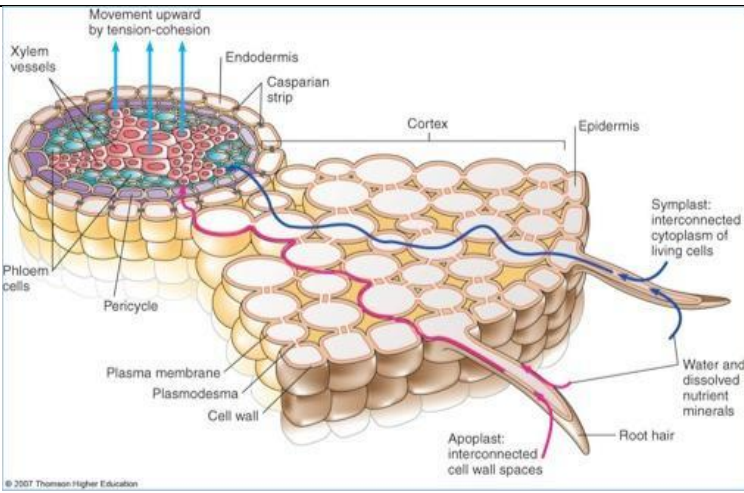
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9. In the first set of pictures, label which side has turgid guard cells and which side has flaccid guard cells.
10. What is the role of potassium in stomata opening and closing?
K⁺ will move into the cell and water will follow making the guard cells bulge and open
If K⁺ leaves the cells, then water will follow and close the stomata

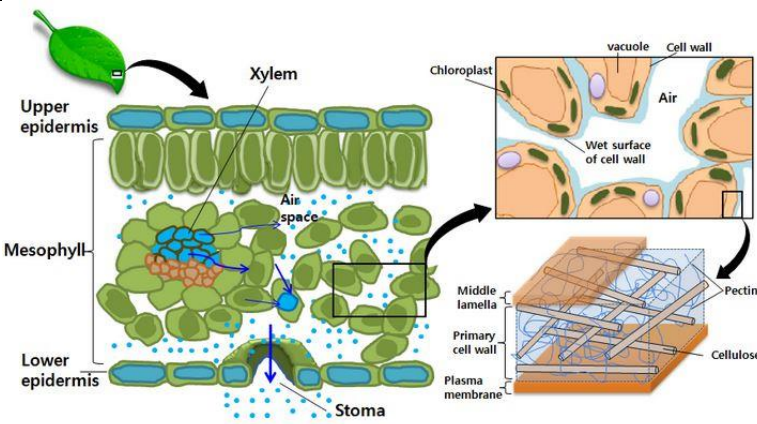


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11. Show the movement of water and sugar in the figure.
12. Label the sugar source and the sugar sink.
13. Sugar is moved by **positive** pressure. Why is it considered to be this type of pressure?
Because as more water is added when the sucrose moves into the phloem, the solution will then move due to gravity and get pushed into the next cell



14. What is the Casparian strip?
Ring of impenetrable cells that force the materials moved through the apoplast route to have to cross the cell membrane before it can get into the xylem
15. Differentiate between apoplastic and symplastic routes.
Apoplastic route travels materials through the cell wall
Symplastic route travels materials through the cytoplasm and plasmodesmata



16. Explain the steps of water loss from plant leaves. Include properties of water, water potential differences, root pressure, and stomata opening.
- **Due to cohesion and adhesion and progressively lower water potential, the water loss from the open stomata triggers water loss from the air space.**
 - **Then water is lost from around the cells in the cell wall, then from the surrounding cells and air spaces.**
 - **Finally, water is lost from the xylem.**
 - **Water has been pushed up the xylem due to root pressure first and then pulled by cohesion and adhesion**