

Title: Plant Structures and Function

Introduction: Just as human bodies have organ systems that move fluids, provide nutrients, and discharge wastes, plants must also have systems to do the things that allow homeostasis to exist in their bodies. In this activity, you will look at plants both under a microscope and macroscopically, with your eye alone.

Procedures:

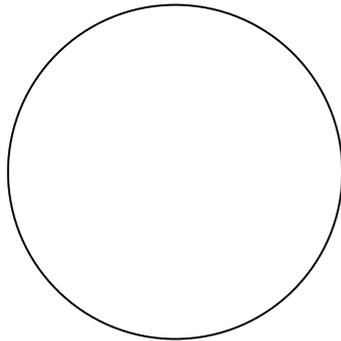
1. Working with a partner, visit each station, make observations and record data. Follow the directions carefully and clean up when you leave each station.
2. Answer the questions at the end after the class discussion.

Data:

Station 1-Stem parts



1. Take the razor blade and shave a thin cross section across the bottom of the stem.
2. Place the cross section on the microscope and observe under low power. Draw your results below. Label the xylem, phloem and cambium.



Station 2-A tree cross section

1. Use the diagram to help understand what the layers in the tree trunk mean. Draw your specimen below and label the parts:
2. How many rings does your specimen have? How old was it when it was cut?

Station 3-Salt water and stems

The celery is split in two vertically and one half placed in salt water, the other in red colored water.

1. Draw the celery and describe why it looks the way it does. Use the word osmosis and cells in your description.

Drawing:

Describe:

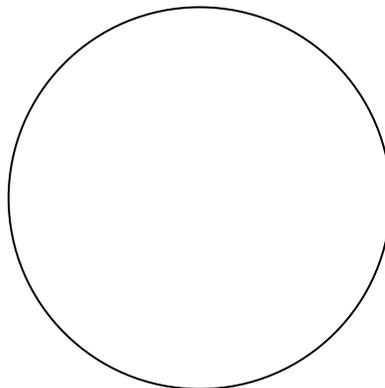
Station 4: Leaves

1. Scan the underside of the leaf and look for stomata. They look like football shaped cells imbedded in other cells. Draw one below:

Station 5-Prepared specimen leaves

1. Look at the slide under the microscope. It is a cross section of a leaf showing the structures inside a leaf.

Use your book and label as many parts as you see.



Station 6-Vein patterns

1. Draw and name the two leaves showing the vein patterns.

Station 7: Root Tip

1. Look at the tip of the root on the prepared microscope slide.
2. Look at the tip under the microscope and draw what you see. Look for the tip, zone of elongation and root hairs.

Drawing:

Station 8: Flower

1. Draw the flower and label it's parts. Circle the names of the parts that are female and put a square around the male parts.

Analysis questions:

1. How does the structure of the vascular tissue in plants (xylem and phloem) help it's function?

2. Why must a tree grow from the outer layers and not the inner layers?

3. What effect does salt water have on the stem?

4. Why?

5. The structures of a leaf are somewhat similar to the structures in skin. Why might they be alike?

6. Veins in a leaf have distinctive patterns. What must the veins do to maintain homeostasis in the leaf?

7. What part of the root grows fastest?

8. Why?

9. What is the function of the petals in a flower?

10. If the anthers in a flower were LOWER than the stigma, what would you assume about how that flower would be fertilized?

Conclusion: