Lab 12: Plant Vascular System & Transpiration

Read pages 103-104 as an introduction and/or refresher of plant anatomy

Herbaceous Monocot Stem page 109

-Observe prepared slide of *Zea mays* and be able to locate the following items: *epidermis, vascular bundle, xylem, phloem*

-The function of the above listed items can be found on C71-C72-be sure to know why each is important to plant transpiration

-Identify what tissue is stained with the red dye in the celery demo; why?

Dicot Woody Stem pages 110-111

-Observe prepared slide of *Tilia* and be able to identify the following items: cork, phloem, vascular cambium, xylem

-Which tissues make up the "bark" and which make up the "wood"?

-Look at wood block and identify cork, phloem, and xylem

Stomata on Lower Epidermis page 111

-Obtain a piece of leaf from Setcresea plant and follow directions for viewing stomata on underside of leaf (lower epidermis) using a wet mount

-Why are stomata important?

-Begin to think about how these structures influence a plant's activity

Leaf Cross-section page 112

-Observe prepared slide of leaf cross-section and identify the following items: epidermis, leaf vein, palisade mesophyll, stoma, guard cells

-The function of the above items can be found on C71-C72-be sure to know how each plays a role in plant respiration

-See diagram at front desk if there are any questions on leaf cross-section

-What cells is photosynthesis occurring?

-What tissues are inside a vein?

Transpiration Experiment pages C73-C78

-Work in teams of 3-4

-Follow the directions carefully!

-I will demo a set-up with the equipment

(*note*: If your meniscus is not at 0.9ml, be sure to change the value in the table to *your* starting value for the meniscus)

-Choose a variation from those listed on page C74

-Fill in VARIATION #1 block with your data

-the first 16 minutes in the "control" and the last 16 minutes in the "experiment"

-We will fill in the rest of the blocks with the data from the other groups

-Take the data and complete the graphs (C77-C78) to see how each of the variables influence transpiration

-Answer questions on page C75

Review: Trace the pattern of water through a plant from where it enters to water vapor leaving Be able to describe the process of transpiration

Know the difference between monocot and dicot stems