Things to know for Lab #12  Plant Structure & Organization

Next week: extra credit reports due & final lab quiz in practical format!

Lab # 10 in Fleury Lab Guide

Be able to distinguish between monocots & dicots based on characteristics shown on back of handout.

A variety of stems, roots, and leaves will be on display. Students should follow directions in lab guide for their observation. Also see plastic models that demonstrate plant structure.

Roots  see p. 70-72 photo atlas
understand concept of Casparian strip
Allium (onion) root tip: use 40x objective to see various stages of mitosis, note root cap
root hairs - note root hairs extending from root and darker vascular cylinder within root
Ranunculus (buttercup) root cross section - use high mag to identify structures in dicot root
look at slides of both young and old roots to see the developmental progression of vascular tissue
Zea mays (corn) root cross section compare this monocot to Ranunculus (dicot)

Stems  see p. 73-4 photo atlas
understand the differences between herbaceous & woody stems
monocot (Zea = corn) and dicot (Helianthus = sunflower) stems c.s. (herbaceous stems)
compare arrangements of vascular bundles (= monkey faces in monocots!)
know these structures/ functions: epidermis, cortex, vascular bundle, pith
Elodea stem tip  (similar to Fig. 13.8 photo atlas)
know name and function of apical meristem, axillary bud, leaf primordium
Tilia (linden, basswood) stem in c.s. & l.s. - know bark (cork, cortex, phloem, vascular cambium), wood (xylem in annual rings), pith; be able to tell how old a woody stem is

Winter twig (Fig. 13.16 atlas) - find terminal bud, terminal bud scar (how much did twig grow in one year?), leaf scar, vascular bundle scar, node, axillary bud

Leaves  see p. 76-79, in photo atlas
look at assorted leaves, and find blade and petiole; know different leaf types (simple, cmpd, alternate, opposite) and vein patterns (palmately-veined, pinnately-veined, etc.)
find epidermis, vascular bundle, stomata, guard cell in model of leaf cross section (Fig. 13.19) slides: Lillium  (lily) leaf epidermis w.m. - note numerous stomata surrounded by guard cells
Monocot & Dicot leaf epidermis (w.m.) - note difference in arrangement of stomata & guard cells
Look at leaves & compare veins in monocots (parallel) & dicots (net pattern)