Lab 12: Plant Anatomy & Transpiration

GOALS:
You should be able to.....

- ★ Describe the role of water in the survival of plants and how water is transported through them.
- ★ Define transpiration and explain the process of transpirational pull.
- ★ Explain how certain conditions can affect the rate of transpiration.
- ★ Identify and state the functions of major tissues in an herbaceous monocot stem, woody dicot stem, and leaf cross-section.

I. Transpiration Experiment

- ❑ pp. C73-C77: Follow procedure and record results in data table. Be sure to conduct both the experimental control as well as your experimental variation.
- ❑ Fill in your data on class overhead.
- ❑ Graph your results on p. C77.

II. Herbaceous Monocot Stem

- ❑ p. 109, Fig. 9.6: View slide of monocot stem and use diagram to help you identify structures.
- ❑ Be able to label and state functions of:
  - ✓ epidermis
  - ✓ cortex
  - ✓ vascular bundle
  - ✓ xylem
  - ✓ phloem
  - ✓ pith
- ❑ View demo of celery and carnation. How has the colored water entered these plants?

III. Woody Dicot Stem

- ❑ p. 110-111: Follow procedures #1-7 to view slide and identify structures.
- ❑ View wood block, which is also a woody dicot stem.
- ❑ On slides and wood block, be able to label and state functions of:
  - ✓ cork
  - ✓ cortex
  - ✓ phloem
  - ✓ annual ring
  - ✓ xylem
  - ✓ vascular cambium

IV. Stomata

- ❑ p. 111: Follow procedures #1-4 to create and view your own wet mount slide.
- ❑ Be able to identify and state the functions of:
  - ✓ stoma
  - ✓ guard cells

V. Leaf Cross-Section

- ❑ pp. 112 & C71-C72: View leaf cross-section slide. Use reading and diagram to help you identify the structures.
- ❑ Be able to label (p.112) *and* state the functions of (p.C71-C72):
  - ✓ cuticle
  - ✓ leaf vein
  - ✓ palisade mesophyll
  - ✓ spongy mesophyll
  - ✓ upper/lower epidermis
  - ✓ stoma
  - ✓ guard cells