

Lab 12: Plant Anatomy & Transpiration

pp. 103-104, 106-111, 115-118, C77-79

GOALS:

- 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 stems, woody eudicot stem, and leaf cross-section.
- Be able to visually differentiate between eudicot and monocot stems.

KEY TERMS:

leaf Cross-Section

cuticle
leaf vein
palisade mesophyll
spongy mesophyll
upper/lower epidermis
stoma/stomata
guard cells

herbaceous stems

epidermis
cortex
vascular bundle
xylem
phloem
pith

woody eudicot stem

cork
cortex
annual ring
xylem
phloem
vascular cambium

experiment

transpiration/transpiration rate
transpirational pull
stomatal transpiration
cuticular transpiration

I. Organization of flowering plants introduction:

p.103-105 (skip observation: a living plant): Read and answer questions.

II. Stomata:

p. 106: Look at the demo slide of stoma and answer questions 4-7.

III. Leaf Cross-Section:

pp. 107: View leaf cross-section slide and answer questions.

IV. Herbaceous Stems:

p. 108-109: Read and answer questions. View demo of celery and carnation. How has the colored water entered these plants?

V. Wood Eudicot Stem:

p. 110-111 (top): Follow procedures #1-7 to view slide and identify structures. View wood block, which is also a woody eudicot stem.

VI. Transpiration Introduction:

pp. C77-C79: Read and answer questions.

VII. Transpiration experiment:

pp.115-117: Read and follow instructions. You can choose which varied condition to investigate in your groups.

VII. Review:

p. 118: Answer questions 3-9