**AP Biology Lab Preview: LAB 9 – Transpiration**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_ Per: \_\_\_\_\_

Go to the following website to complete the pre-lab activity. Read through the concepts, review the experimental design and complete the questions where applicable. Pre-lab is due at the beginning of class on lab day.

- Lab Bench: <http://www.phschool.com/science/biology_place/labbench/lab9/intro.html>

**Introduction:** Read section to review concepts

**Key Concepts 1:**  Read through sections to review concepts 1 and 2

**TEST YOURSELF – Concepts 1 and 2**

1. What property of water accounts for the fact that molecules of water "grab" the walls of the thin xylem vessels?
2. Water molecules pull each other like beads on a string; as one molecule is evaporated through a stoma, another is pulled up. What property of water is demonstrated here?
3. Place the following in order (list the letters), from highest water potential to lowest water potential, under normal conditions.
   1. Mesophyll of leave
   2. Outside air around leaf
   3. Spaces around roots
   4. Inside the xylem vessels

**Key Concepts** Read through sections to review concepts 3, 4, and 5

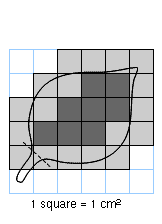
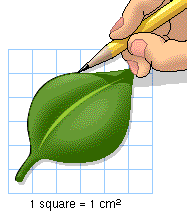
**Concept 5 Question** – write out the balanced equation for photosynthesis

**TEST YOURSELF – Concepts 3, 4, 5**

1. Which condition would result in the higher rate of transpiration:  
   light or dark? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Which condition would result in the higher rate of transpiration:  
   humid environment or dry environment? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Which condition would result in the higher rate of transpiration:  
   breezy conditions or still air? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Which condition would result in the higher rate of transpiration:  
   hot environment or warm environment? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Design of Experiment:** Read through the experimental design and sketch the set up here. What is a photometer? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**An overview of the experiment:** What are the different variables studied? What will you be measuring?

How to calculate the surface area of a leaf: Read the explanation and complete the calculation

What is the area of the leaf shown here?

**Analysis of results 1:**

Fill in the chart online to analyze the data provided.

**Lab Quiz 1: Self Quiz – record your answers here**

1. \_\_\_\_
2. \_\_\_\_
3. \_\_\_\_
4. \_\_\_\_
5. \_\_\_\_
6. \_\_\_\_
7. \_\_\_\_
8. \_\_\_\_

**Key Concepts II:** Read the section to review the concepts

**Analysis of results II**

Name tissue type A and describe its function.

Name tissue type B and describe its function.

Name tissue type C and describe its function.

Name tissue type D and describe its function

**Lab Quiz 2: Self Quiz – record your answers here**

1. \_\_\_\_
2. \_\_\_\_
3. \_\_\_\_
4. \_\_\_\_