

Table 1. Predictions

Predict how each environmental condition—normal, windy, warm, and humid—might affect the rate of plant transpiration. Rank the conditions from the lowest rate to the highest rate, with number 1 being the lowest and number 4 being the highest.

Rank	Prediction
1.	<div></div>
2.	<div></div>
3.	<div></div>
4.	<div></div>

Table 2. Transpiration Amounts with Different Environmental Conditions

Conditions	0 min	10 min	20 min	30 min
Normal	1mL	mL	mL	mL
Windy	1mL	mL	mL	mL
Warm	1mL	mL	mL	mL
Humid	1mL	mL	mL	mL

Table 3: Rate of Transpiration with Different Environmental Conditions

Calculate the rate of transpiration using the following formula:

Rate of transpiration = total water loss mL/ surface area m²/30 min

Rate of transpiration = mL / m²/30 min

Rate of transpiration =

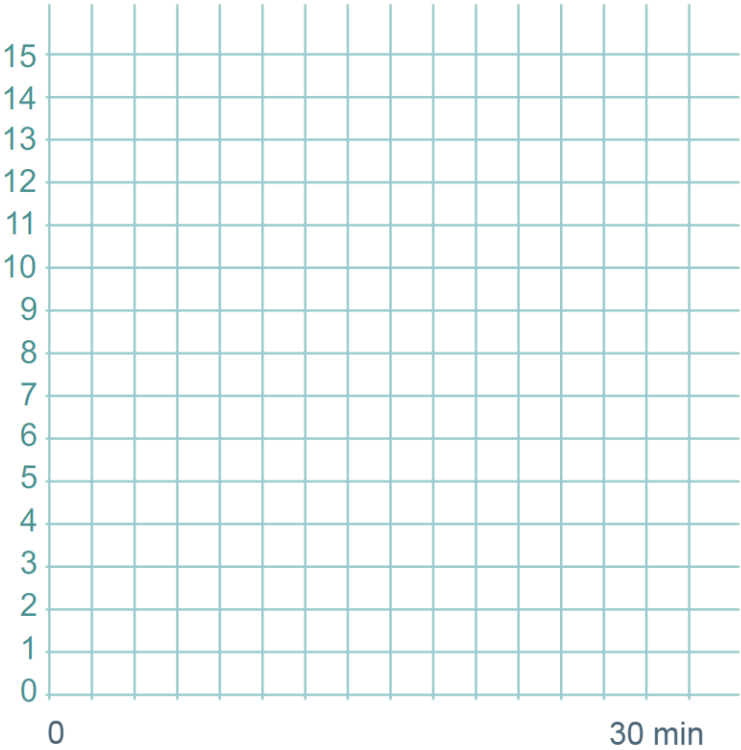
Conditions	Total water loss (mL)	Total surface area of leaves (cm ²)	Total surface area of leaves (m ²)	Rate of Transpiration (mL/m ²)
Normal				
Windy				
Warm				
Humid				

Table 4. Transpiration (mL/m²) with Different Environmental Conditions

Click each environmental condition to graph the results.

Graph 1: Transpiration Rate for Four Conditions

- NORMAL
- WIND
- HEAT
- HUMID



1. **Operational Definition** What is the operational definition for the rate of transpiration?

2. **Conclude** Write your results in the chart. How do your predictions compare with your observations?

Rank	Prediction	Results
1.		<div></div>
2.		<div></div>
3.		<div></div>
4.		<div></div>

3. **Analyze** For each environmental factor, explain why the rate of transpiration increased or decreased from the control conditions.

4. **Evaluate** Why is it important to calculate the surface area of the leaf?

5. **Quantify** Review the graphs that you created. By how much did the rate of transpiration decrease for humid conditions?

6. **Analyze** Why do you think it is necessary to have an air-tight seal in the potometer?

7. **Hypothesize** Roots also play an important role in water transport. Which plays the most important role in the movement of water through a plant—the absorption of water by the roots or the evaporation of water from the leaves? Form a hypothesis and design a simple experiment to test your hypothesis.

When you are finished answering the questions, click **Done**.