

# PLANT TRANSPIRATION

In this easy transpiration experiment, kids will observe how water travels from the roots to the leaves and escapes through stomata, becoming part of the water cycle.

## INSTRUCTIONS:

**STEP 1:** Find a large, healthy leaf on your plant. If possible, choose a plant that's well-watered and in sunlight.

**STEP 2:** Gently place a plastic sandwich bag over the leaf and secure it with a twist tie or string around the plant's stem. Make sure it is snug but not too tight.

**STEP 3:** Over the next couple of hours (or up to a day), water droplets will form inside the bag as water escapes from the leaf.

**STEP 4:** Write down when the water first appears, how many droplets you see, and if anything changes based on whether the plant is in sun or shade.

## Materials

**Healthy plant with large leaves**  
**Clear plastic bag**  
**String or twist tie**  
**Marker**  
**Notebook and pencil**

**Concepts Explored: Transpiration, water cycle, capillary action, stomata, plant structures**

## THE SCIENCE

Plants are incredible living things that help shape the environment! They move water, make food through photosynthesis, and play a key role in the water cycle. Inside the plant, water travels from the roots, up the stem, and into the leaves through special tubes called xylem vessels.



Through transpiration, water escapes from tiny stomata (small pores) on the surface of the leaves, sending water vapor into the air. This process also helps cool the plant and creates the pulling force that moves water from the soil upward.

# Plant Transpiration Observations

Use this worksheet to process and evaluate your work.

Type of plant? \_\_\_\_\_

Indoor       Outdoor       Sunlight       Shade

Draw your plant and bag setup. Label the leaf, bag, stem, and sun or shade.

What do you think will happen? \_\_\_\_\_

What Did You Notice? \_\_\_\_\_

Did you see a difference between sun and shade? \_\_\_\_\_

Was Your Hypothesis Correct?

Yes     No    Explain: \_\_\_\_\_

What do you think affected the plant's transpiration rate the most?  
(sunlight, temperature, humidity, or something else?) \_\_\_\_\_

# OBSERVATION CHART

Time (hours)	Amount of Water in Bag	Notes (sunlight, temperature, etc.)
0	<input type="checkbox"/> None <input type="checkbox"/> Few Drops <input type="checkbox"/> Many Drops	
1	<input type="checkbox"/> None <input type="checkbox"/> Few Drops <input type="checkbox"/> Many Drops	
3	<input type="checkbox"/> None <input type="checkbox"/> Few Drops <input type="checkbox"/> Many Drops	
6	<input type="checkbox"/> None <input type="checkbox"/> Few Drops <input type="checkbox"/> Many Drops	
NEXT DAY	<input type="checkbox"/> None <input type="checkbox"/> Few Drops <input type="checkbox"/> Many Drops	

Optional: Measure Water Loss

Weigh your plastic bag before and after the experiment to estimate how much water the plant lost.

Bag Weight Before Experiment: \_\_\_\_\_ grams

Bag Weight After Experiment: \_\_\_\_\_ grams

Water Loss (difference): \_\_\_\_\_ grams