

**Please use the following resources to learn about transpiration in plants.**

**Watch this Video:** [NASA video on transpiration](#)

**Answer these questions:**

- What two things happen to water drawn up from the plants' roots into the leaves?
- What structure allows gases to pass in and out the leaf?
- How does transpiration affect the air around the plant?
- What environmental conditions cause plants to decrease their amount of transpiration?

**Activities:** Follow these directions to learn about transpiration in plants!

You will need:

<ul style="list-style-type: none"> <li>● Outdoor option: Leafy bush or tree (with a branch you can reach!)</li> <li>● Indoor option: leafy houseplant (ask permission!)</li> </ul>	<ul style="list-style-type: none"> <li>● See-through plastic bags (gallon or larger for outdoor option, quart or sandwich size for indoor option)</li> </ul>	<ul style="list-style-type: none"> <li>● Masking tape</li> <li>● Measuring cup</li> </ul>
--	--	---

First experiment:

1. Select a few leafy trees or plants to study. This will depend on the season!
2. Place a bag over a branch (or two) with plenty of leaves.
3. Close the bag tightly around the leaves using the tape. Try to keep the tape on the plastic and not stick the tape directly to the plant.
4. Make a note of the weather conditions.
5. Wait at least a day (or more) but check the bag every day.
6. Write down your observations. What do you notice?
  - a. Is there condensation inside the bag?
  - b. Is there water collecting in the bag?
  - c. Did the weather affect the amount of water in the bag?
7. Empty the water that you collected into a measuring cup. Record the volume of water for each type of plant or tree you studied.



Follow-up experiment(s):

1. Select two trees of the same species: one in a shady location and the other in a sunny spot. Try to bundle up the same amount of leaves in each plastic bag.
2. See if the tree's location affects the amount of water that it loses to transpiration.
3. Record the temperature each day. How does the temperature affect the amount of transpiration?
4. What other kinds of transpiration experiments can you set up?

**Make observations & use Claims, Evidence, and Reasoning!**

1. **Claim:** Plants “sweat” and release water into the air around them through transpiration.
  - **Evidence:**
  
  - **Reasoning:**
2. **Claim:** The environment of the plant affects the amount of transpiration it carries out.
  - **Evidence:**
  
  - **Reasoning:**