

# Breathing Leaves Experiment

In this hands-on activity, students explore how plants interact with the water cycle. By sealing leaves in a plastic bag, they observe and predict how water moves from the leaves to the environment. Students draw, describe, and diagram their findings, linking their observations to the broader concept of transpiration and the water cycle.

## Instructions

1. Go outside for a walk. Find a small deciduous shrub or tree with low hanging leaves. (If you cannot find a tree with its leaves out yet, you could use an indoor houseplant instead).
2. Place your clear plastic bag over the leaves of the branch. Leaves that have access to lots of sun will show results of your experiment the best.
3. Using your elastic or string tie the bag opening to the branch sealing off the bag from the outside air.
4. Examine your tree. How do you think trees breath?
5. In your writing journal, draw your tree, showing your bagged branch. Make a prediction or a best guess on what will happen in the bag over time.
6. Leave the bag on your tree for one day (or at least 6 hours).
7. Go back to your tree. Carefully remove the bag. What do you see?
8. In your writing journal, draw your bag showing what the contents are inside the bag.
9. Describe what you think happened while the bag was on the leaves. If the bag was not there, where would the water go?
10. Draw a diagram in your journal showing the water cycle. Can you include plants in your diagram?

### Materials:

- small clear plastic bag
- elastic or string
- writing journal

## Discussion

The following questions can support further student engagement or inquiry with this experiment.

1. What did you notice inside the bag after removing it from the leaves? Was it what you predicted?
2. Why do you think water collected inside the bag? How does this demonstrate how plants “breath”?
3. If the bag wasn’t there, where would the water from the leaves go? How does this process fit into the water cycle?
4. How do you think transpiration and the water cycle help plants, animals and humans survive?

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## Experiment

5. Can you think of any ways humans or animals rely on plants' ability to release water? How might this process be affected by climate changes or deforestation?
6. How do trees and plants in Parks and Protected Areas contribute to the water cycle and the health of our environment?

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## Learning Extensions

Watch a 5 min clip from Kananaskis Country's Interpretive Show, [Flow Factor](#) to learn more about the water cycle from Great Blue Herron and Mountain Goat. Entire show runs 45 minutes or cue to 13:20-18:50 for specific segment.

