



## WINTER | Air Breathing: Plants + People

### Summary:

In winter, our plants are less visible but our breath becomes more visible. As we exhale, the small droplets of water in our breath condense making it look a bit like we're exhaling clouds!

### Before Visiting the Garden:

**Gather:** One clear two-liter bottle, two flexible straws, two balloons, tape, and silly putty or clay

**Explore:** "Condensation Cube," 1963 by Hanse Hacke: What do you see inside this cube?

**Read:** *Alive: The Living Breathing Human Body Book* by DK Publishing

### In the Garden:

The leaves of plants function much like human lungs—inhaling gases the plant needs and exhaling waste material. It is important to remember that even though there are fewer projects for us in the garden during this season, our bodies, and especially our lungs, still need to get outside to breathe fresh air and exercise.

### Questions to Explore:

- Can you find a dried leaf in the garden?
- If a leaf functions a bit like a plant's lungs, what does this dried leaf tell you about the life cycle of a plant?
- How do you think your lungs and a leaf are similar? How are they different?

### Activity:

1. We're going to make a model of the human lungs. Begin by taping the two straws parallel with the flexible ends facing the same direction.
2. Next, bend the flexible parts out to form a Y shape. Attach a balloon to each end of the flexible part (be sure to stretch the balloons a little so they're easier to inflate). Tape around the edge of the straw to create a tight seal.
3. Carefully thread the straw through the opening in the top of the bottle. Wrap the silly putty or clay around the neck of the bottle, leaving the tops of the straws exposed.
4. Now you're ready to inflate your lungs. Spend a little time inhaling and exhaling your lungs. You can also seal off the tops of the straws and compress your lungs with the ribcage—the exterior of the plastic bottle.

### Beyond the Garden | Watch a Leaf Breathe!

This simple experiment requires only three items: water, a clear glass bowl, and a fresh leaf (you may need to take one from an indoor plant). Fill the bowl with lukewarm water, submerge the leaf in the water, and place the bowl in a sunny spot. After a few hours, come back and check on your leaf. What you should be able to see are tiny bubbles on the edges of the leaf—the oxygen exhaled by the leaf as it breathes!

### Continue Exploring | Supporting Materials

Watch the lungs at work: <https://www.youtube.com/watch?v=8NUxvJS-0k>