



*A project of the Chicago Botanic Garden*

## BUDBURST FOR FAMILIES

Spending Time with Family and Plant Friends!

**Title:** Living, Breathing Plants

**Age Group:** 5-8<sup>th</sup> Grade

### **Purpose:**

- **Why?** Scientists ask questions and perform experiments to learn about nature. This activity has you working together as a family, planning an investigation, observing and recording results, and drawing conclusions like a real scientist. These are STEM skills that will carry over to school or other academic learning.
- **How?** Using your observation skills, and a cell phone magnifier if you have one handy, look closely at a leaf. Do you see veins? Does it feel or look waxy? Are there fuzzy little hairs on it? Now let's investigate even more closely to see how plants use their leaves to help them take in oxygen and get rid of carbon dioxide (respire). We use our lungs to do this same thing!
- **What?** Would placing petroleum jelly over your nostrils make it more difficult to breathe? (Don't try it!) By smearing petroleum jelly over different parts of a leaf, we will be able to see where 'breathing' occurs in plants.

### **Steps:**

1. Find a plant with lots of green leaves that can easily be reached. Don't pick the leaves, you want them to stay alive and breathing! Choose three different leaves on each plant, and mark them with small strips of masking tape that you can write on. Attach each masking tape label at the base of the leaves. One label will say 'top', one will say 'bottom' and the other will say 'both'.
2. Each person can gently rub petroleum jelly over the specified area of a leaf based on how each is labeled. Do this for a couple of different kinds of plants and assign everyone their own leaves to observe.
3. You could create a data table to record observations over the course of two, three, or four weeks; encourage this.
4. After at least two weeks have gone by, convene a family scientist meeting and discuss the findings. Did the petroleum jelly affect the leaves? If so, how? Where do you think the openings are in the leaves? We use our lungs to breathe. In plants it is called respiration. Take another deep breath and appreciate the fresh air!
5. To extend this activity, check out what happens when you prevent a plant's leaf from making its own food (photosynthesis) by covering half of a leaf's surface with masking tape for several days. Return and remove the tape to see how the leaf's color has changed.

**If you want to learn more** about respiration and photosynthesis, see:

<https://www.khanacademy.org/science/biology/photosynthesis-in-plants/introduction-to-stages-of-photosynthesis/a/intro-to-photosynthesis>