



## Curiosity Guide #704

### Leafy Science

Accompanies Curious Crew, Season 7, Episode 4 (#704)

#### Ghostly Leaves

Investigation #2

#### Description

Have you ever seen the skeleton of a leaf? Try creating ghostly leaves!

#### Materials

- 9 by 13-inch glass baking pan
- Parchment paper
- Baking soda
- Measuring cups
- Oven
- Spoon
- Gloves
- Goggles
- Tea kettle
- Water
- Saucepan
- Waxy leaves with noticeable vein patterns on the bottoms
- Spatula
- Watercolor brush
- Cotton swab
- Glass
- Tweezers and needle
- Bowl
- Bleach
- Paper towel

## Procedure

- 1) Heat your oven to 200 degrees.
- 2) Cover the glass baking pan with parchment paper.
- 3) Measure and pour three-fourths of a cup of baking soda onto the paper. Spread the baking soda out evenly with a spoon.
- 4) Bake the soda for thirty minutes in the 200-degree oven to dry the soda out and make washing soda.
- 5) Fill a tea kettle with water. Bring the water to a boil.
- 6) Measure and pour two cups of boiling water into a saucepan.
- 7) Put on gloves and goggles.
- 8) Carefully lift the parchment paper with washing soda out of the baking pan. Pour the soda into the saucepan of water.
- 9) Bring the mixture to a boil to dissolve the soda, then lower the heat to simmer.
- 10) Add the leaves to the simmering soda mixture and leave for 90 minutes. Add water if necessary to keep the leaves submerged.
- 11) When some of the leaf matter begins to separate, use a spatula to carefully remove the leaves from the pan.
- 12) Rinse the leaves gently in cold water.
- 13) Place the leaves in the empty glass baking pan and carefully smooth the surface with the watercolor brush. Blot dry with cotton swabs.
- 14) Fill a clean glass with tap water.
- 15) With a delicate touch, and using the watercolor brush, begin to paint the surface of each leaf with water. Work from the center of the leaf outward and blot dry as you go with swabs.
- 16) After working one side, use a pair of tweezers to flip the leaf and continue on the other side, so the flesh of the leaf falls away and leaves the vascular bundle visible.
- 17) Allow the leaves to dry.
- 18) The leaves are very fragile. You may need to use tweezers and a needle to free the leaves from the glass container.
- 19) Place the leaves in a small bowl. Pour enough bleach to cover them.

20) Let the leaves sit. Once the leaves have turned color, first yellow and then white, carefully lift the leaves out with the tweezers. Place the ghostly leaves on paper towels to dry completely.

## My Results

### Explanation

Cooking the leaf in washing soda and water loosens the fleshy part of the leaf. Painting the leaf gently with the watercolor brush continues the process and leaves just the vascular bundle. The vascular bundle is a network of tubes that runs through the leaf. Large tubes that are called xylem carry water. Smaller tubes that are called phloem carry sugar that has been created after photosynthesis.

**Leafy thoughts:** Have you ever found yourself in the shade of a tree on a hot day or admired the colored leaves on a fall afternoon? We have all appreciated leaves, but did you know that leaves play a key role on our planet? It's true. A leaf is like a little solar panel that uses energy from the sun to make food. The leaf then releases oxygen and water in the air to support life in the biosphere. Even when leaves fall to the ground, they hold moisture and release nutrients into the ground as the leaves decompose. Leaves are amazing!

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