



DALLAS ARBORETUM
Education

Garden STEM at Home
Trees in Trouble: Acid Rain



WE GROW MINDS, TOO.

TREES IN TROUBLE: ACID RAIN



OBJECTIVE:

STUDENTS WILL EXPLORE THE IMPACT OF ACID RAIN ON TREES BY EXPERIMENTING WITH THEIR OWN LIVING MODEL.

SOURCE

Project Learning Tree PreK-8 Activity Guide

BACKGROUND

Many scientists believe that acidic precipitation, or acid rain, causes negative health effects on trees, and other vegetation. In this model, students will use white vinegar to simulate this effect.

INSTRUCTIONS

1. Ask students to form a hypothesis about what will happen to plants grown under the influence of acid rain. Ask them to use an if/then statement (If plants are grown with more acidic water, then ...)
2. Visit the EPA resource below to explore the phenomenon of acid rain.
3. Prepare 5 plantings in identical containers. Use a quick growing seed, such as radish, sunflower or lima bean.
4. Prepare 5 treatments: pure water, pure vinegar, 25% vinegar water, 50% vinegar water and 75% vinegar water. Label each plant container according to the liquid you will use for it.
5. Provide the same amount of light and liquid to each container.
6. Keep a daily log of plant observations.
7. Discuss changes in the health and growth of the plant as they occur.
8. Possible questions for discussion: (1) When did you first notice effects of the acid rain? (2) Does the concentration of the acid rain make a difference? (3) What are the strengths and weaknesses of this model?

ADDITIONAL RESOURCES

Explore the Trees in Trouble Resources page from PLT:

<https://www.plt.org/activity-resources/prek-8-activity-77-trees-in-trouble/>

EPA: What is Acid Rain? Resources:

<https://www.epa.gov/acidrain/what-acid-rain>

USGS Acid Rain and Water Resources:

https://www.usgs.gov/special-topic/water-science-school/science/acid-rain-and-water?qt-science_center_objects=0#qt-science_center_objects

Protecting Trees and Forests by Felicity Brooks; ISBN: 074600656X.