



# Teacher Toolkit

Activity: Plant Adaptations

Presented by: Civic Garden Center of Greater Cincinnati

Grade Level(s) 4<sup>th</sup>-6<sup>th</sup> grade

## Activity Description

Experience the garden by investigating the roots and leaves of several plants- you'll even get to taste some of them!



## Ohio Standards Met

- Science, Grade 4: Earth's living history
- Science, Grade 5: Light, sound and motion
- Science, Grade 5: Interactions within ecosystems
- Science, Grade 6: Rocks, minerals and soil

## Instructions

- Introduction
  - What are the different parts of the plant? Are plants living or non-living? What do plants need to survive? How do the different parts help the plant survive? Do plants impact the environment? How?
  - Break into three groups for each of the three activity stations (or do each station as a whole class).
- Station 1- Observe: Leaf Rubbings
  - Ask the students to explain why leaves are important; what do they do for the plant? What is happening to the leaves on the trees in the fall?
  - Pass around a variety of collected fallen leaves and point out the differences in shape, size and texture.
  - Demonstrate how to put the leaf under the paper and rub with a crayon to create the rubbing image on the paper.

Thanks to Greater Cincinnati Environmental Educators (GCEE) for collecting activities for the Teacher Toolkit



## Instructions (continued)

- Station 1 (continued)
  - Allow the students to collect three leaves from the garden or schoolyard and have them create their own leaf rubbing work of art.
  - Show students how to measure the height and width of each leaf and write their measurements next to the leaves.
- Station 2- Explore: Plant Parts Taste Test
  - Review the parts of a plant and ask students to explain why each part is important.
    - Roots: take in water, nutrients and minerals from the soil
    - Stem: provides support for the plant, transports materials
    - Leaves: turn sunlight into sugars for energy
  - Ask students to list fruits and vegetable they enjoy, and determine which part of the plant it comes from.
  - Pass around the roots and leaves for tasting, encouraging the students to use all of their senses to describe how each smells, feels, looks and tastes.
- Station 3- Garden: Weeding by the Roots
  - Go over handout with different types of root systems.
  - Pull some weeds from the garden or schoolyard and pass them around for students to examine the roots.

## Materials Needed

- Station 1
  - Collected fallen leaves
  - Crayons
  - Paper
  - Clipboards
- Station 2
  - Roots to taste (radishes, carrots)
  - Leaves to taste (lettuce, spinach)
- Station 3
  - Trowels
  - “Different Root Types” handout (see next page)
  - Hand lenses (if possible)

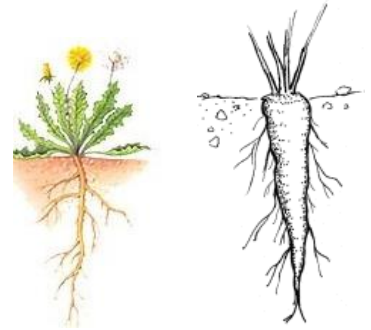
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*Adapted from: Life Lab Science Program*

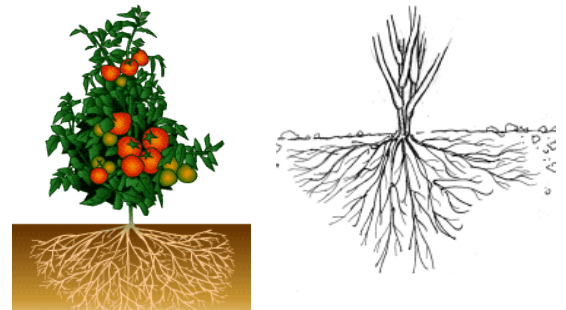
### Tap Roots

- Plants with tap roots have one big, long root.
- Plants with tap roots will not be knocked over by the wind or animals.
- Plants with tap roots can reach nutrients and water deep in the soil.



### Fibrous Roots

- Plants with fibrous roots have many small roots.
- If animals eat the leaves and stem of a plant with fibrous roots, some of the roots will stay behind to start growing again.
- Plants with fibrous roots can gather many nutrients and water from the top layer of the soil.



### Food Storage Roots

- Plants with food storage roots have one main root that grows long and wide.
- Plants with food storage roots keep animals above ground from eating the food they make.
- Plants store food in their roots to use during the winter, when there is little sunlight and the plants can't make very much food.
- Food storage roots are actually a type of tap root!



*Building Community through Gardening, Education & Environmental Stewardship*

