

Getting to the Root of It: Plant Dissection and Root Systems

Through direct observation and diagramming, students learn about plant roots, stems, leaves, and flowers.

By [Steven Hicks](#)

GRADES

PreK–K, 1–2

DURATION

1 CLASS PERIOD

OVERVIEW

Using a real plant, students will explore the parts: roots, stems, leaves and flowers. They will learn about the functions of these parts. Students will make a diagram of the plant and label the parts.

Preinstructional Planning

OBJECTIVES

Students will:

- Recognize that roots, stems, leaves and flowers are parts of plants
- Observe and record the different parts of a plant
- Understand how the parts work together to help the plant

MATERIALS

- Scrap newsprint
- Magnifying glasses, one per student
- A flowering plant (from a flower pack), one for each pair of students
- Water tray, one for each pair of students
- Water
- Paper plate, one for each pair of students
- Two potted plants: one with a cutting (stem and flower without the roots) stuck in the soil, and one with roots
- Chart paper and markers
- Drawing paper for each student
- Pencils or pens
- Crayons or colored pencils
- **Optional:** Large pot or flowerbox
- **Optional:** Loose soil for replanting

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During Instruction

SET UP

1. Lay out newsprint on the tables.
2. Fill water trays for partners.
3. Set out magnifying glasses.
4. Set out plants from plastic container, but leave soil around roots.
5. Establish science partners.

LESSON DIRECTIONS

PART I

Step 1: Gather students in a circle and tell them that today we are going to look at the four parts of a plant. Show students two potted plants: one with a cutting (stem and flower without the roots) stuck in the soil and one with roots.

Ask students to gently push on the plants as they are passed around and observe what happens (plant with the cutting in soil falls over). Ask why one plant falls over and not the other.

Step 2: Explain that one of the four parts of a plant students will be looking at today is called a root. The roots hold the plant in place and bring water and food (or minerals) from the soil to the plant.

Step 3: Tell students that they are going to get a chance to look at the roots of a plant with a science partner. Explain the steps carefully before sending students to begin. One partner will hold the plant while the other washes the dirt away. Each partner must be gentle so that the plant does not break. When the plant is cleaned, lay it on the paper plate and examine the roots with the magnifying glasses.

Step 4: Distribute materials. Send the science partners to their seats to wash the roots and observe their plants.

Note: You may choose to do this part outside because of the mess.

PART II

Step 1: Ask science partners to gather on the carpet in a circle with their plants and magnifying glasses so they can look at their plants while you discuss the parts. (While students are gathering, you may want to collect the water and newsprint.) Ask what students noticed about the roots. How did they compare to the roots of the seeds they had grown in the cup in Lesson One?

Step 2: Ask one of the students to draw the plant that they observed on a sheet of chart paper. Make sure the student includes the roots, stem, leaves, and flower.

Step 3: Ask students to point to the roots of their plant. Label the roots on the chart. Ask students if they know the other parts of the plant. Some students may know the names, while some will not. Label the other parts: stem, leaves, and flower. While you label, ask students to point to that part on their own plant. Explain the function of the parts. Stems carry water and food from the

roots to the leaves. They also hold the leaves up to get the energy from the sun. Leaves are the food factory for the plant. They take the water and minerals from the soil and combine it with the sunlight energy and carbon dioxide from the air to make food for the plant. Explain how animals breathe out carbon dioxide to give to the plants, while the plants give off oxygen for us to breathe in. Lastly explain that although the flowers are beautiful to look at, the real purpose is to make fruit and seeds.

Step 4: Tell students that now they will have an opportunity to draw a diagram of their plant and label the parts. Send science partners back to their tables to complete their diagram and label the parts. Encourage students to color their pictures.

Step 5: Gather science partners together to share their diagrams.

Optional: Replant the flowers in a large pot or flowerbox to enjoy outside. When the flowers die, dry them and save the seeds so the children can see from where they come.

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SUPPORTING ALL LEARNERS

Where appropriate, help students label their pictures with beginning sound letters or words. Those that are able can write words or sentences. Take dictation for students that need it.

LESSON EXTENSIONS

Show students how stems bring up water and food to the plant.

1. Put celery and white carnations in jars with food coloring and watch over a week's time.
2. After a week, the white carnations will be the color of the food coloring.
3. Mark the water level so you can show students that the water has been sucked up through the stem like a straw.

4. Split open the celery stalk and show students the tubes that bring up the water.

HOME CONNECTIONS

With parental permission, ask students to bring in flowers and leaves from around their home and community. Make a display in class and try to identify the kinds of leaves and flowers.

ASSIGNMENTS

- Complete a diagram of a plant with labeled parts

Post Instructional

EVALUATION

- Did students make an accurate drawing of the plant?
- Did students label the parts?
- What kind of emergent writing is apparent?
- Was there enough time for students to be successful?
- What would I do differently?

LESSON ASSESSMENT

Observe how students work with their science partner and how they label their diagram.

Let's Grow Plants!

Growing real plants in the classroom allows students to get an upclose look at seed growth.

By [Gayle Berthiaume](#)

GRADES

1–2

DURATION

2 DAYS

OVERVIEW

Students learn about seeds and how they grow.

Preinstructional Planning

OBJECTIVES

Students will:

- Identify what a seed does
- List reasons why people plant seeds
- Plant seeds
- Graph the growth of their seeds over several days
- Write about their experiences planting seeds

MATERIALS

- Large sheet of chart or butcher paper for brainstorming words
- Scissors
- Markers
- *The Tiny Seed* by Eric Carle
- *The Carrot Seed* by Ruth Krauss and Crockett Johnson

- Seeds (Use any available kind. I usually use a fast growing flower seed if I do this lesson before Mother's Day.)
- Soil
- Styrofoam cups, one per student
- Watering can full of water
- Wooden tongue depressors or other flat wooden sticks, one per student
- Newspaper (for catching the mess)
- Spoons (for scooping soil)
- Nonfiction books about plants (see the Plants and Trees Book List for suggestions)
- Observation notebooks, one per student
- **Optional:** *KidspirationT* software
- **Optional:** *KidPixT* software
- **Optional:** Computer
- **Optional:** Large screen TV or projector for displaying computer screen

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During Instruction

SET UP

1. You may want to call a parent volunteer to help with planting the seeds.
2. Cut out a large paper leaf from the chart or butcher paper. Hang the leaf so it attaches to the flower paper from the previous lesson.
3. Before planting the seeds, spread newspaper on the desk or table where students will be planting.
4. Write each student's name on a wooden tongue depressor or flat wooden stick.
5. Set up class time for one small group at a time to plant their seeds. The other small groups will rotate through other activities.

LESSON DIRECTIONS

DAY 1

Step 1: Read *The Tiny Seed* and *The Carrot Seed* aloud to the class.

Step 2: Lead the class in comparing and contrasting the two books and in discussing what a seed does.

Note: If you use Kidspiration, record your discussion using diagrams (connect your computer to a projector for students to view). Otherwise, use a sheet of chart paper to record the discussion.

Step 3: Throughout the discussion, have your parent volunteer add vocabulary words to the leaf-shaped paper.

Step 4: As a class, plan how *The Carrot Seed* could be dramatized.

Step 5: Divide the class into small groups.

Group 1: Goes with the parent volunteer to plant their seeds at the station.

1. Each student will need a styrofoam cup, a wooden tongue depressor, a marker, a spoon, and a few seeds.
2. Use a spoon to fill the styrofoam cup about halfway with soil.
3. Place the seeds in the center of the cup. **Note:** Read directions on the seed packets for best practices for planting, watering, and caring for the type of plant you are using.
4. Cover the seeds with more soil. Leave about a half inch of space between the soil and the top of the cup.
5. Pour a small amount of water from the watering can into the cup.
6. Stick the tongue depressor with the student's name written on it into the student's cup for identification.

Group 2: Acts out the story of *The Carrot Seed*.

Group 3: Will be the audience for the dramatization.

Group 4 (if needed): Reads other books about plant growth. I recommend *From Seed to Dandelion*, *From Seed to Pumpkin*, and *From Acorn to Oak Tree* by Jan Kottke, or *From Seed to Plant* and *It Could Still Be a Flower* by Allan Fowler. See the Plants and Trees Book List for more suggestions.

Group 5 (if needed): Illustrates the story with paper and crayons, colored pencils, or markers.

Step 6: Rotate the groups so every student has a chance to plant seeds.

Step 7: Have students place their labeled seed cups in a sunny area of the classroom.

DAY 2 AND BEYOND

Step 8: Over the next week or so, have students water the seeds, watch, and write their observations in their notebooks.

Step 9: Have students write about their experiences with planting seeds.

Optional: The students could illustrate and write about plants using a computer software program like *KidPix*. Print the final product (or a screen capture).

Step 10: Bind students' stories to create a class book about plants.

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ASSIGNMENTS

1. Have each student tell you three facts about growing plants.
2. Write a story about plants.

Post Instructional

EVALUATION

1. Was there enough time?
2. Did the planting of the seeds go smoothly?
3. Did students have enough content information to write about plants?
4. If you used it, how effective was the use of the software?

LESSON ASSESSMENT

Copies of the students' experience writing should be saved for their assessment portfolios.

Teacher Observations

1. Were students able to compare and contrast the stories?
2. Can students describe the life cycle of a plant?

Featured Book



Tiny Seed, The

GRADES

PreK–K

READING LEVEL

L



The Carrot Seed

GRADES

PreK–K

READING LEVEL

G

Featured Book List



Plants and Trees Book List

GRADES

PreK–K, 1–2