

# GROWING PLANTS IN THE GARDEN

GRADE 1  
UNIT 2

## Designing Plants

LESSON 1

Content Objective	Identify the basic parts of plants and their functions
Life Skill Objectives	Critical thinking and communicating by singing, talking, and illustrating
Indicators	Correctly assemble plant parts and demonstrate their functions through singing and motions
Subjects	Science, language arts, art, music
Materials	Clear plastic cups, bean seeds or marigold transplants, and potting soil (one cup and seed or plant per student or a few for the entire class to observe, optional) Copies of Observation Record (located on page 114) Marker Transparent tape Examples of fruits and vegetables (apples, sweet potatoes, carrots) Flower heads that form seeds (use the flower heads from the sunflowers growing in the sunflower house the children planted in kindergarten, or use marigolds, zinnias, etc.) Activity 1, Grade 1, Roots, Stems, Leaves, and Flowers (one per student) Cassette: "Roots, Stems, Leaves" from <i>Dirt Made My Lunch</i> by the Banana Slug String Band (provided with <i>Growing in the Garden, K-3</i> ) Evaluation (from notebook pocket)

You may want to invite parents, school personnel, ISU Extension staff, media representatives, community and business leaders, neighbors, gardeners, or farmers to participate in this lesson. They can read to the class, assist with an activity, tell about their jobs and experiences, or bring materials for the lesson.



Teacher Note: Two weeks prior to this lesson, have the students plant bean seeds or marigold transplants in clear plastic cups. Observe the changes in the plants and use the Observation Record from page 114 for students to record what they see each week. Use the plants for the following lesson on plant parts.

Plants, like people and animals, have different parts. What are some of your parts? (arms, legs, feet, hands, ears, toes, head, neck, etc.) Plants have four basic parts. Do you know what they are? (roots, stems, leaves, and flowers)

(20 minutes)

## Do

Do you know the song “Head and shoulders, knees and toes?” Stand away from your chairs, and let’s sing the song and do the motions together. What if your body was a plant? What part of your body would be the roots? (feet) What part of your body would be the stem? (body) What part of your body would be the leaves? (arms) What part of your body would be the flower? (head) Let’s point to those parts starting with the flower. (Touch head and say “flower.” Hold out arms and say “leaves.” Touch waist and say “stem.” Touch toes and say “roots.”) Now let’s sing the “Head and Shoulders” song using the parts of the plant. (Sing it once slowly and a second time a little faster.)

(Distribute Activity 1, Grade 1, Roots, Stems, Leaves, and Flowers.)

Look at the pictures on the activity sheet and tell me the four parts of a plant. Every picture in the first column is a root. Every picture in the second column represents a stem and leaves. Every picture in the third column is a flower. Now color your pictures however you like.

(You may want to talk about the plant parts using a language other than English. An interpreter such as a parent or a student can help the class learn the words.)

There is a song at the bottom of the pictures of flowers, stems and leaves, and roots. Let’s sing it together to learn more about plant parts.

(20 minutes)

## REFLECT

(Use the plants in the clear plastic cups; examples of fruits, vegetables, and flower heads; and the activity sheet for the following discussion.)

Roots: Which part of your plants grew first? Where are the roots? Why do plants have roots? Roots function like feet. They help plants stay firmly in the soil. How do you suppose roots also are like our mouths? They take up water for the plants. Nutrients from the soil enter plants through their roots and help them grow. The water and minerals move from the roots to the stems. Mark the letter “r” for the word “roots” on the bottom of each picture on the activity sheet that looks like a root.

Roots come in many different shapes and sizes. Look at the root pictures on your activity sheet. Some plants such as beans and tomatoes have thousands of long, thin roots that reach deep into the soil. Point to the picture that might be a root from a tomato plant. Some plants such as

carrots and radishes have one long, thick, fat root that has smaller roots coming off it. Which picture looks like a carrot root? (Hold up a real carrot.) Can we eat this root? We also eat the thick roots of plants such as sweet potatoes. They are very healthy because of the nutrients they store. Other roots are clumps of thick bulbs such as the tulip root in the picture. What picture looks like a single bulb with roots coming out the bottom? It also looks like an onion. If this picture was an onion, the onion part would actually be layers of leaves on the base of the stem. The roots would be the parts coming from the bottom.

**Stems:** Find the stems in the pictures and mark those boxes with the letter “s” for the word “stems.” Do the stems look the same? Are there differences? The stems on plants work like straws. They move water and minerals from the roots up to the leaves and flowers. They also move food that is made in the leaves down to the other parts of the plant, such as the roots, where it is stored. In most plants, the stems support the plants and hold the leaves and flowers, the same way your body holds your arms and legs and keeps you standing tall. Look closely at the stem of the real plant and see how it connects the plant parts together.

**Leaves:** Leaves are very important parts of a plant. They make food that helps the plant grow. They use sunlight, air, and water to make food. Different plants have many different leaf shapes and sizes. You can often tell what kind of plant it is by looking at its leaves. Mark the pictures of leaves with the letter “l” for the word “leaves.” Describe the differences and similarities among the leaves. The leaves spread out to capture the rays of light. Compare the leaves on the picture with the leaves on the real plant.

**Flowers:** Flowers are usually the prettiest part of the plant. A plant makes flowers to produce seeds. When the flowers die, you may see a fruit, a pod, or a cluster of seeds in the same place the flower was. Flowers are colorful and smell good to attract insects such as bees. These insects pollinate the flowers, which make the fruits, pods, and seeds form. Seeds are found inside the fruit or pods of tomatoes and peas or on the outside of strawberries and sunflowers. Mark the pictures of the flowers with the letter “f” for the word “flowers.” How are the flowers different? How are they similar? Does the real plant have a flower? What does it look like? Have you seen the flowers on a tomato plant, pumpkin vine, or apple tree? After the flowers disappear, the tomatoes, pumpkins, or apples grow. (Show samples of fruits, vegetables, and seed heads.)

(Play “Roots, Stems, Leaves” from *Dirt Made My Lunch* by the Banana Slug String Band. Then ask students the following questions.)

- What were the parts of the plants in the song?
- What part of the plant actually grows the fruits and the seeds?
- What does the root do in the song? What about the stem, leaves, and flowers?

(Use the activity sheet to help students design their own plants.) Now, we are going to design our own plants. Carefully cut out the boxes with the pictures. Mix them up and design your favorite combination to make four plants, each with a root, stem and leaves, and a flower. We’ll tape them together and hang them in our room. Or, you can take them home to someone you care about.

(Help the students tape the plant parts together. After hanging the plants around the room, discuss their similarities and differences. Emphasize that there are many different kinds of plants with various roots, stems, leaves, flowers, colors, and sizes.)

(10 minutes)

## APPLY

(You may want the students to make roots, leaves, and flowers out of construction paper and tape them on their feet, arms and hands, and heads.) Let's stand in a circle, squat down, and curl up into a ball. We are all seeds. Now, let's grow into a plant by slowly standing up to be straight and tall. Hold your arms out from your sides. Think about the parts of a plant and where they are located. Which part of your body is the roots? Pretend to plant them in the ground. Curl your toes, spread your legs apart. Your feet and legs are reaching down to keep you steady and hold you in place against strong winds and rain. Your body is the stem and your arms are leaves or branches. Your fingers can be leaves also; make them open up and reach for the sky to catch the sun's rays. How does that make you feel? It makes me feel strong and happy. Pretend that your head is a beautiful flower moving gently in the breeze. Do flowers make you smile? Flowers are colorful and smell good. They attract bees and butterflies. Now relax. If you were a plant, what kind of a plant would you want to be and why?

Teacher Note: You may want to play "Roots, Stems, Leaves" again and have the students stand in a circle and act out the song. Now, you have a concert to present to other groups of people.

Describe the parts of your favorite plant. Do you like this plant because of its flowers or leaves? Have you ever seen the roots of your favorite plant?

Why should we pull weeds out of our gardens and yards before the flowers fade? The flowers make the seeds. If we wait too long, the seeds will scatter and we'll have many more weeds.

Name some fruit or vegetable plants on which you have seen a flower and then a fruit or vegetable. (Popular answers may be apple or cherry trees, strawberry plants, cucumbers, tomatoes, and pumpkins.)

Can someone describe what a corn tassel looks like? You see them in Iowa fields in the middle of the summer. What part of the corn plant is the tassel? The tassels on the top of corn plants are flowers. It might be interesting to know that the corn tassels drop pollen onto the corn silk coming out of the cob. Each corn silk produces two corn kernels. Because each silk produces two kernels, ears of corn always have even numbers of rows of kernels.

You may want to read and talk about *Tops and Bottoms* by Janet Stevens.

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### Resources

Banana Slug String Band. "Roots, Stems, Leaves." *Dirt Made My Lunch*. Santa Cruz, Calif.: Music for Little People, 1987. Sound cassette.

Heller, Ruth. *The Reason for a Flower*. N.Y.: Grosset & Dunlap, 1983. ISBN 0-448-14495-6.

Stevens, Janet. *Tops and Bottoms*. San Diego, Calif.: Harcourt Brace and Company, 1995. ISBN 0-15-292851-0.

# *Roots, Stems, Leaves, and Flowers*

## **Preparation**

1. Make enough copies so everyone can color and complete the activity.

## **Presentation**

2. Distribute the activity sheet, and use it to talk about plant parts in Grade 1, Unit 2, Lesson 1, "Designing Plants."
3. Learn the Parts of a Plant song below the pictures. Sing it together.
4. Ask the students what they would have if they put the roots, stems, leaves, and flowers together. Have the students color the pictures and then cut them out. Make sure they follow the cutting line.
5. After the pictures are colored and cut out, ask the students where the roots go, then the stems and leaves, then the flowers. Have the students create different plants by using different roots with different stems and different flowers. Have them choose their favorite combinations and go around the room to help them tape the plants on the back to hold the parts together. Refer to Grade 1, Unit 2, Lesson 1, "Designing Plants," to complete the activity.

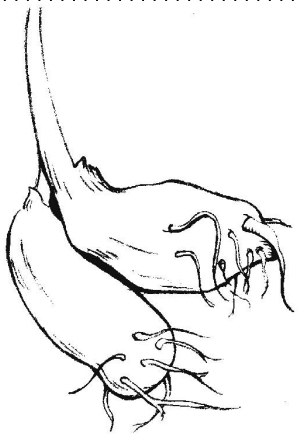
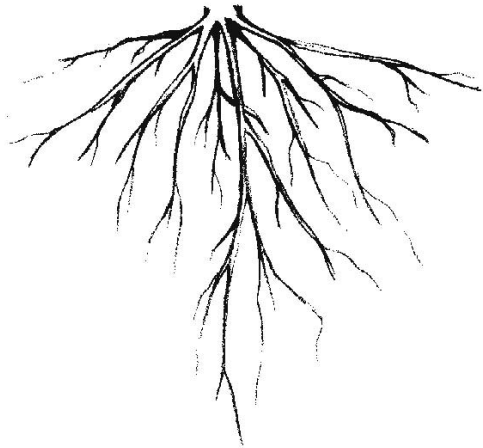
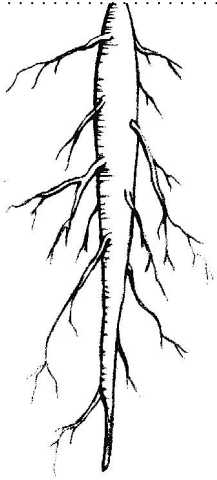
## **Follow-up**

6. Gather the plants and put them around the top of the wall in the room. Or, have the students take their plants home and give them away to someone. Tell them that it is a popular custom to give plants or flowers to people we care about.

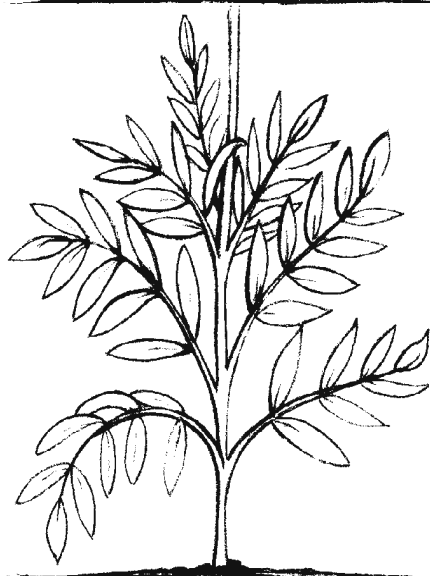
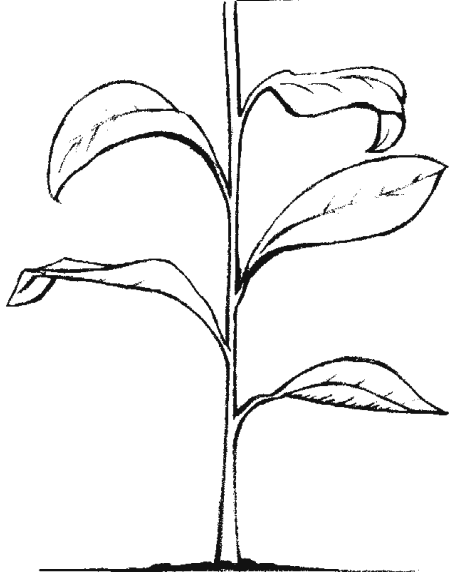


# Roots, Stems, Leaves, and Flowers

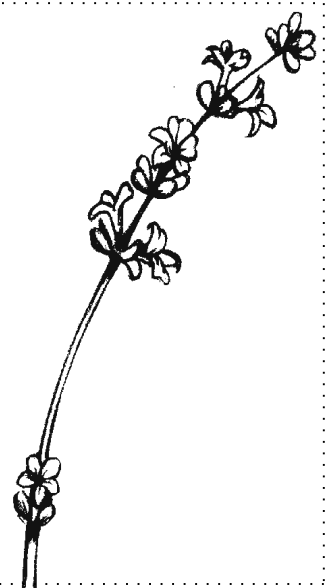
## Roots



## Stems and Leaves



## Flowers



## Parts of a Plant <sup>2</sup>

(Sung to "The Wheels on the Bus")

<sup>2</sup> Goldish, Meish. (1996.) *101 Science Poems and Songs for Young Learners*. New York: Scholastic, Inc. ISBN 0-590-96369-4

*The roots on a plant grow underground,  
Underground, underground.  
The roots on a plant grow underground,  
Roots are part of a plant.*

*The stems on a plant hold up the leaves,  
Up the leaves, up the leaves,  
The stems on a plant hold up the leaves,  
Stems are part of a plant.*

*The leaves on a plant are making food,  
Making food, making food.  
The leaves on a plant are making food,  
Leaves are part of a plant.*

*The flowers on a plant are growing seeds,  
Growing seeds, growing seeds.  
The flowers on a plant are growing seeds,  
Flowers are part of a plant.*