

## Material Preparation

### MATERIALS

- cloth big enough to cover the flower
- watering can
- pitcher of water
- thriving, potted plant in dry soil
- newspaper
- masking tape
- fresh flower with a long stem (carnations work best)

For each child:

- magnifier
- set of *Plant Puzzle Cards* (one root, one stem, one flower, and two leaf cards)
- plastic drinking cup
- two standard, **not flexible** drinking straws
- *Ask Me About Plants* sticker

### PREPARE IN ADVANCE

- Make copies and cut out the *Plant Puzzle Cards* for each child in the group.
- Just before the lesson, fill the plastic cups with clean drinking water.

### SET UP THE LESSON AREA

- Cover a small floor space or table top with newspaper.
- Place potted plant, watering can, and one magnifier for each child on the newspaper.
- Cover the fresh flower with cloth and set aside.
- Set aside a cup of water, two straws, and set of *Plant Puzzle Cards* for each child.



For each child

### TEMPLATES

*Plant Puzzle Cards*

## OBJECTIVE

Children will learn how roots and stems work together to carry water and help plants stand up.

## EXCITE

1. Gather the children in the ECHOS lesson area, seated around the plant. **Here is a plant.** Point to the leaves on the plant. **We usually see this part of the plant, but today we're going to look at the part that grows in the *soil*.** **What do you think we will see?** Listen to the children's responses.
2. **I am going to gently lift the plant out of its pot so you can observe it.** Gently lift the plant out of its pot. Carefully shake the plant over the newspaper and use your fingers to loosen the soil so the roots are exposed.



## INTRODUCE

1. **Let's take a closer look. I'll give you each a magnifier.** Give each child a magnifier. **When it's your turn, come close and very carefully and gently look at the *roots* with your magnifier.** The roots help the plant get the water it needs from the ground. Water moves up through the roots and into the *stems*. Collect the magnifiers.
2. **Can anyone point to a stem on this plant?** Prompt the children to make observations describing how the stem looks and feels.
3. **We will need to put this plant back in the dirt soon. After we put it back, we will need to give it a little water. The water will move through the roots and the stems to help the plant grow.** Replant the plant, packing it in the soil. Use the watering can to model how to water the plant. **There, that's better!**



4. Place the plant aside. **Sometimes there is another important part of a plant.** Pick up the flower, keeping it under the small cloth. **Can you guess what is hidden under this cloth? I will describe it to you and you can try to figure out what it is. It has *petals*.** Point to the petals. Pause to listen to the children's guesses. **It is colorful and pretty and may have a nice smell. What is it?** Listen to the children's responses. If needed, prompt them to say *flower*.
5. Reveal the flower from under the cloth. Hold up the flower and point to the long, main stem. **This is the stem of the *flower*.** Point to the other stems of the flower that connect the small leaves. **Each leaf also has a small stem.**
6. **This stem helps the flower stand up tall. The stem carries water from the roots to the *leaves* and the flower. What do you think would happen if the stem was bent or broken?** Listen to the children's responses.



## EXPLORE

1. Invite the children to sit at a table. **Let's do an experiment. I will give each of you a cup of water.** Distribute the cups. **I will also give you a straw, but don't put it in your cup yet. Pretend your straw is a plant stem. Now bend your straw in the middle.** Model how to bend the straw in the middle. Assist children as needed.
2. **Now put it in your cup of water and try to drink with it.** Observe the children. Some straws may need to be bent more for the experiment to work well. **Can you drink the water? It's not very easy to do.**





3. **Can water travel to the leaves and flower if the stem is bent?** Listen to the children's responses. **If the stem is bent, then the water can't travel through the stem to the flower.**
4. **If the stem is bent, can a flower still stand up straight?** Listen to the children's responses. **Let's observe.** Bend the stem of the real flower. **What do you observe? Yes, the flower flops over. It can't stand up.**
5. Collect the bent straws. Give each child a new straw. **Now you may finish drinking your water with a stem that is not bent.** Collect the cups and straws and discard. **We learned that the stem and roots work *together* to carry water and to help a plant to stand up.**
6. **Let's see if you can remember the parts of a plant. I have puzzle cards for each of you. When you put them together they will make a picture.**
7. Give each child one set of *Plant Puzzle Cards*. **Look closely at your cards.** Use these suggested prompts to guide the children as they create their *Plant Puzzle*.
  - **What grows in the soil?** Prompt the children to say roots.
  - **What grows from the roots?** Prompt the children to say stem.
  - **What grows from the stem of a plant?** Prompt children to say leaves.
  - **What grows at the top the stem?** Prompt the children to say flowers.
8. **Let's look at our *Plant Puzzles* carefully.** Review the parts of the plant with the children. **Great job, botanists!**



## INTERACT

Interact to accommodate children's individual needs and strengths. Use these suggested strategies as needed.

- Supervise children so that they are only drinking from their own straw.
- Some children may need help with the *Plant Puzzle*. You can help them by using the real plant as a model.

## OUTCOMES

1. Regroup the children in the ECHOS lesson area. **What did we discover today?**  
Listen to the children's responses. If needed, use suggested prompts to elicit key concepts and vocabulary. Encourage responses from everyone.
  - **What parts of the plant did we talk about today?**
  - **How does a stem help a plant?**
  - **How do roots help a plant?**

!

2. Give each child an *Ask Me About Plants* sticker.



Remind the children to tell their family something they have learned about plants.

3. After you have completed *Lesson #3: Roots and Stems Together* with all the children in your classroom, add the ECHOS materials suggested below to your science area to encourage exploration.

## VOCABULARY

- flower
- leaves
- roots
- soil
- stem(s)
- together
- petals



watering can

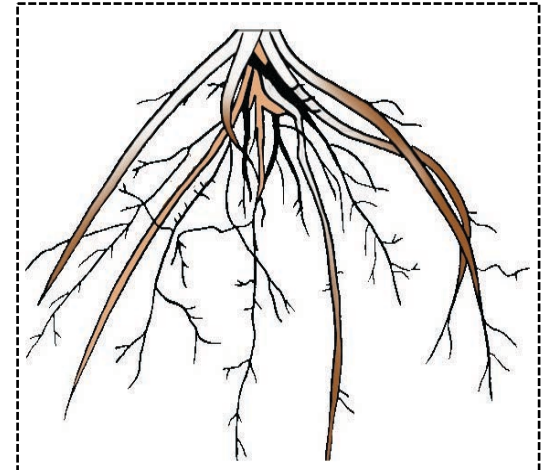
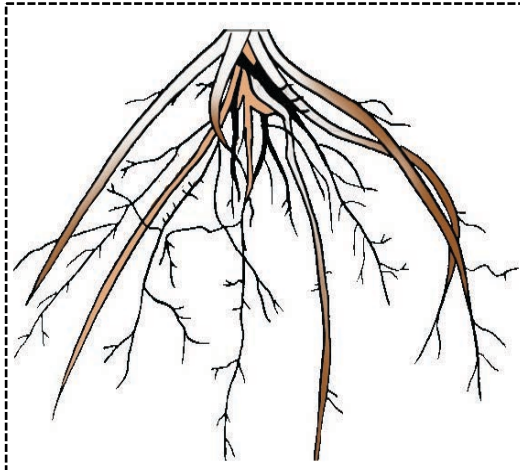


living plant



*Plant Puzzle Cards*

Plant Puzzle Cards



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