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 **PLANTS**

This lesson plan focuses very basically on the main parts of plants (the roots, the stem, the leaves, and the seed) and their functions. They will learn about the what a plant needs to grow. They will also learn about how some plants reproduce (specifically seed driven reproduction).

**Material List**

**Key Words**

* Photosynthesis
* Nutrients
* Germination
* (Roots, Stem, Leaves, Seeds, Flower)
* Carnations/Daisies (5 dozen)
* Food dye (One Packet with multiple colors)
* Markers and crayons and pencils
* Parts of the plant fill in sheet
* Different kinds of seeds (in a zip-block bag)
* Plant microscope pictures
* Paper Towel
* Seed Identification Sheet
* Leaves
* Paper
* Flower picks
* Plastic bucket
* Pipettes
* Sandwich bags
* Labels

**Introduction (2 minutes or so)**

Today we are going to learn about plants. We are going to learn the different parts of a plant. We are going to learn about what a plant needs to grow and how it grows. We are also going to look different kinds of seeds. Finally, you are each going to be able to take home a daisy and watch it turn colors.

**1. Parts of the plant and plant necessities**

Duration: 15 minutes

**Materials:**

-Fill in the Blank Plant Worksheet

-Laminated stem and leaf pictures

-Pencils

 Before starting ask the kids if they can generate a list of what a plant needs to survive. Keep that list and you can refer back to it with the kids later. Then pass out the parts of the plant worksheet. This worksheet breaks plants up into three parts (Roots, Stem, Leaves, and seeds). Start with the roots. Ask them if they know the purpose of roots. Teach the kids that the roots help the plant take up nutrients and water. You can explain that these nutrients are minerals that help the plant stay healthy, similar to vitamins for humans. Then have the kids write in the word roots on the worksheet. Next move onto the stem. Again, ask the kids what they think is the purpose of the stem. Explain that the stem has two main functions. 1) it helps the plant transport the water and nutrients from the roots to the leaves. 2) the stem also provides stability for the plant, like bones in humans. Then have the kids write in the word stem on the worksheet**. Show them pictures of what the inside of a stem looks like under a microscope.** Next, move onto the leaves. Ask the kids what the purpose of the leaves are. Have you ever heard of the word **photosynthesis**? Explain that the leaves of a plant trap in sunlight. The leaves also help take in CO2 (carbon dioxide). The plants use water, CO2 and sunlight to make their food. This process is called photosynthesis. Can you say photosynthesis? Then have the kids write the word leaves in on the worksheet. **Show the kids a picture of a leaf from under a microscope.** Have the kids write in the word seeds and explain that we will learn more about it next. Tell the kids they can take the picture **HOME** to color

1. **Roots:** absorb water and nutrients. Can store the nutrients. Help anchor plants to the ground
2. **Stem:** Provides stability to the plant and the leaves. Transports water and nutrients. Makes the plant taller so the leaves can have more light.
3. **Leaves:** Where photosynthesis occurs (how a plant makes its food). Plants store their food in the leaves as well. Where water exits the plant as a gas (if are older can say this is called transpiration.
4. **Seed:** Where the plant grows from.

**2. Carnations or Daisies**

Duration 15 minutes

**Materials:**

**-**Demo flowers

**-**Flowers

-Flower water tubes

-Scissors

-Plastic box

-Food dye

-Sandwich bags

-Water

-Pipettes

Next show the kids the carnations that have been sitting in food coloring. Let the kids take a look at the flowers. Explain to the kids that they can see that the water traveled from the stem all the way to the leaves. The water is then distributed to the leaves in tiny veins, just like the ones in our body that transport blood. Let the kids see the ink in the veins of the flower.

 Next let each kid make their own science experiment to take home. Hand out flowers and flower water tubes. Explain to the kids that the flower will start changing color after a few hours. By tomorrow the colors should be even darker!

**1)** Have a volunteer fill the plastic containers with water. Then let the kids use the pipettes to put water in their flower tube.

**2)** Have another volunteer cut the stem of each flower so that the flower sits a little above the plant water tube. **Make sure to cut the flower on a diagonal so that it will absorb the water better!**

**3)** Next let each kid pick a color of food dye. If the kids are really young help them put **THREE** drops of food dye into the tube

**4)** Next place the tube into a sandwich bag and seal it up

**5)**  Label the bag with the name of the child.

**6)** Place the flowers aside and give them to the children on their way out

**3. Seeds**

Duration 10 minutes

**Materials:**

-Zip-block bag of seeds

-Paper

-Leaves

-Seed identification sheet

-Germination laminated sheet

-Crayons

 Explain that many plants start from seeds. Show the kids pictures of the stages of seed growth. Ask the kids to see what they notice. Ask the kids if they have ever heard of the word **GERMINATION.** If they have, ask them to try to explain it. Then explain that germination **is the process of a seed turning into a plant**. The series of pictures above shows plant germination. Next take out the zip block bag of seeds. Explain that seeds have many ways of moving from one location to another. Ask the kids if they can think of any. Some seeds can be blown in the air, while others are moved around by animals.

Pass out each type of seed one at a time and let them look at the wide diversity of seeds. Then show them which are more likely to be dispersed by animals (the acorn) and which are more likely to be dispersed by wind (the oak seed). Larger seeds are normally dispersed by animals, while lighter seeds can be carried in the wind! After the kids looks at the seeds see if they can match each corresponding seed on the worksheet to learn what kind plant will grow from that seed. Finally give out a sheet of paper to each child and distribute crayons. Let each kid make a leaf rubbing of the maple leaf and oak leaf.

**MAKE SURE TO PUT THE LEAVES CAREFYLLY BACK IN THE BAGS AND SEAL THEM SO THEY STAY FRESH**

**Conclusion**

Plants and seeds come in a variety of forms and sizes. The main parts of a plant are the roots, stem, leaves, and seed. They each contribute to helping the plant grow and survive. Plants use sunlight, Co2 and water to make their own food through a process called photosynthesis. Plants go from seed to plant in a process called germination.

**Instructor Comments**

-Make sure during the seed activity that all the kids are able to look at the seeds

-Watch out for the food dye! Make sure that it does not accidentally spill. I will add paper towel into the box in case it does.

- I really wanted each kid to take home a flower, so that is why the activity is second. That way even kids who leave early can take one home. Make sure that when that activity is over to place the flowers aside so that they can move onto the seed activity