1st Grade Environmental Education

September

PLANTS

Total Time: Approx 50min

Suggested Volunteers: 4 or more

(1 for each station plus a garden escort)

Activity Breakdown:

Whole Class Activity: Dinosaur Plant

Station 1: Planting the Garden

Station 2: Parts of a Plant & Cup Garden

Station 3: Inside a Seed

Suggested Pre-Activity Preps:

1. Get ready to plant. Visit to website at www.dolvinpta.org and click on THE GARDENS to find everything you need to know about the garden. Take a look at the garden map to locate your garden. You might want to pay a quick visit to your garden before planting day to make sure it's ready.

2. Soak your beans. Remember to soak about 60 lima beans overnight in a small amount of water on the night before the activity so they will be soft enough for the students to dissect.

Whole Class Activity: DINOSAUR PLANT

Time: Approx 5min

Materials:

Dried Dinosaur Plant
Classroom Kit Guide Handout
Plastic bowl
Water

Read to the Class:

Hi Class! Today we're going to learn about Plants. Plants come in all shapes and sizes but right now we're going to talk about one plant that's not like any other plant in the world. I'd like to introduce you to the Dinosaur Plant. (**Show the dried plant to the class**.)

Hello, I'm a Dinosaur Plant! I am one of the longest living plants in the world. Plants like me have been around for almost 300 million years. My ancestors looked down to see the very first dinosaurs emerge. Back then we were much bigger, like trees. We grew to over 120 feet tall. That's even taller than a Tyrannosaurus Rex!

But when the ice age came, conditions were tough so we had to mutate, or change to survive. We became really small and we learned a special trick…how to hibernate! When we couldn't get water we found out that we could just curl up into a dried ball and the wind could roll us across the land in search of water. In this dormant, or sleeping state we can wait for up to 50 years for our next drink!

I may look like a dry, dead ball of weeds right now, but put me in water and see what happens. In less than one day I'll uncurl my leaves and start to turn green. Wash me off and change my water daily to keep me clean and happy. I don't even need dirt! Keep me wet and see how I grow for a few weeks. Then let my water evaporate and watch me slowly curl up for another nap.

Bring the Dinosaur Plant back to life!

1. Place the dinosaur plant in a bowl of water.
2. Place the plant in semi-shade, near a window, indoors.
3. Observe the plant at the end of the class and again at the end of the day.
4. Change the water and rinse the plant every day.
5. At the end of the month, stop watering the plant.
6. After one week, place the plant and the bowl back in the box to be used again next year.

After you set up the Dinosaur Plant, split the class into 3 groups.

Station 1: Planting the Garden

Time: Approx 15min
Materials:

Garden Plot (See Garden Map)
2 Bags of Soil \
Garden Tools \ All provided by Garden Coordinator and found in the garden area
Plants or Seeds /

Instructions:

Please visit THE GARDENS section at www.dolvinpta.com for full instructions for planting, harvesting and cleaning up your garden.

Prepare your garden.
This year our garden coordinators have already cleaned the gardens for us so you just have to add the 2 bags of soil and smooth it out. It might be helpful to do this before the children arrive to save time. Don't forget to check the map to make sure you're in the right garden.

Locate your tools and plants.
Some classes will be growing spinach, swiss chard, radishes, lettuce, turnips and flowers. The garden coordinators have chosen the plants that will be best for the conditions in your particular garden and will set them out for you. If your class is planting seedlings, then each child will have a small container to plant. If your class has been assigned to plant seeds, we will provide a packet and you will divide the seeds and give each child some seeds to plant. The tools can be found in a box in the garden area.

Help the kids plant.
If possible, it's helpful to have an extra volunteer to walk the children between the classroom and the garden. This allows the person in the garden area to stay in the garden while the groups rotate through.

Have fun!

Station 2: Parts of a Plant & Cup Garden

Time: Approx 15min

Materials:

"Parts of a Plant" Booklet and Diagram
Dried Lima Beans – 3 per student
Plastic Cups – 1 per student
Cotton Balls – 6 per student
Rubber Bands – 1 per student
Plastic Wrap
Permanent Marker
Bottle of Water
Edible Plant Pictures

ACTIVITY 1 – Parts of a Plant

1. Read the "Parts of a Plant" Booklet.
2. Quickly discuss the "Parts of a Plant" Diagram. Quiz the kids about each part and it's function. *"What is this? What's it's job?"*
   - Root- Anchors the plant and absorbs water and minerals from the soil.
   - Stem – Supports the plant (holds the plant up so it does not fall) and transports water and food to different parts of the plant)
   - Leaves – Absorbs sunlight and produces food through a process called photosynthesis
   - Flowers or fruit – Makes the world pretty and makes seeds so new plants can grow.

ACTIVITY 1 – Planting a Seed

1. Give each child a plastic cup labeled with his/her name on the side.
2. Place the cotton balls at the bottom of the cup and add enough water to completely moisten the cotton.
3. "Plant" the dried lima beans between the cotton and the wall of the cup. Be sure to leave some space between the beans.
4. Cap the cup with plastic wrap and the rubber band.
5. Place the cup near the window sill.
6. Ask the children to observe their plants for 2 weeks.

Ask the kids these questions while they are planting:

1. Which will grow first the root or the stem? (Usually the root is first, but sometimes they seem to grow at the same time.)
2. What does a seed need to grow? (Air, Water, Sun & Nutrients like soil)
3. What environment in the classroom would provide the best environment for the seeds to grow? (Near the window sill.)

4. Will the leaves be green when they first appear? (Not usually. They're yellow until they are exposed to light.)
5. If a seed is planted upside down, will the plant grow upside down? (No, the plant can sense gravity. The roots will grow down and eventually the stem will grow up.)
6. What happens to the seed coat? (It falls off and is discarded.)
7. What happens to the food supply of the seed? (The part that stores food shrinks as the food is used up and the root takes over feeding the plant.)

If time allows, discuss which parts of a plant are edible.
They all are! On the "Parts of a Plant" diagram, match the Edible Plant Pictures with the part of the plant they represent.

- Root- carrots, radishes, beets
- Stem – celery, asparagus, potatoes
- Leaves – lettuce, spinach, cabbage
- Flowers – broccoli, cauliflower
- Fruit – apples, green beans, tomatoes, oranges, green peppers
- Seeds – nuts, pea, lima beans

Station 3: Inside a Seed

Time: Approx 15min

Materials:

- Diagram of a Bean Seed
- Dried Lima Beans – 3 or 4 per group
- Toothpicks – 1 per student
- ***Presoaked Lima Beans** – 2 per student
- Cup of Water
- Magnifying Glasses
- Paper Towels
- Microscope & Slides

ACTIVITY 1 – Seed Dissection

1. Show the students the Diagram of a Bean Seed. Quickly point out the leaf part, the root part, the food storage and the micropyle, which is the hole through which water goes into the seed. Explain that the first step in seed germination (or starting to grow) is the absorption of water through this hole.

2. Put a few Dried Lima Beans into a cup of water. Have the students observe at the end of the activity that the bean actually gets larger because of the water entering through the micropyle and the seed coat begins to peel away. Use new beans for each group.

3. Give each student a paper towel (as a workspace), a magnifying glass, a toothpick. Give them each 2 Lima Beans that have been soaked overnight in a small amount of water so they are soft enough to break apart. Have students dissect the bean and identify the 3 parts of the seed (the seed coat, the root part, and the food storage.)

ACTIVITY 2 – Under the Microscope

1. Set up the Microscope in a stable location near an outlet. Place an open bean on a slide and set it up for viewing with the 4X lens.

2. Allow the students to examine the bean through the microscope one at a time while the other students are dissecting their beans. Instruct the students to use great care with the microscope. Ask them not to change the lens or put their fingers on the eyepiece. Show them how to gently move the slide to view different parts of the bean.