

Science Action – Kindergarten
Lab #3: Trees
Updated May 2016

Lab Instructions

Objectives

1. Learn about the roots, trunk, bark, branches, and leaves of a tree
2. Learn about the many things that trees give us
3. Learn about seeds and how seeds disperse

Introduction

(have students sit in a group on the rug; Coordinator does introduction while parent volunteers set up their stations)

Today we are going to be talking about trees. When you think of the word “plant,” what do you think about? *(flowers, vegetables, etc.)* Trees are also plants. They are the oldest and the largest plants we have in the world. Trees are very important to our lives. Today we will be discussing the parts of the tree, what trees give us, and what they provide for nature. At the end of the day, each of you will take home your very own tree seedling to plant. We will talk about what your tree will need to grow big and strong.

Rules of Science Lab: listen to instructions and have fun!

(teacher will break up students into four groups and assign to tables)

Lab Activities

Activity #1: Parts of the Tree

Materials Needed: tree seedlings, plastic bags, masking tape, Sharpie markers, Planting Instructions handout

Show each child the tree they will get to take home at the end of the day. Ask students to tell you the three main parts of the tree *(roots, trunk, and leaves – in this case, the leaves are pine needles)*

- **Roots:** Ask the kids what the roots do for the tree *(anchor the plant & keep it firmly planted in the ground; they act like a straw to drink the water and minerals from the soil)* What do the roots of the tree do for us? *(prevent erosion - discuss erosion: erosion is when wind and water remove some of the soil...trees have strong roots that keep the tree in place, & keep the dirt in place,*

so when water and wind start to take away some dirt, that water and wind cannot move the tree; the tree stays put and protects the soil around it)

- **Trunk:** Ask the students what the trunk does for the tree (*holds up the leaves and transports the water and nutrients to the leaves*). What are some things we get from the trunk of the tree? (*paper, toilet paper, books, pencils, etc.*)
- **Leaves (pine needles):** Ask the students what the leaves do for the tree (*makes energy from sunlight to keep the plant alive: photosynthesis*). What do we get from the leaves? (*Shade to keep us cool in the summer, oxygen so we can breathe fresh air, etc.*) What is special about pine needles? (*They are always on the tree – even in winter; they do not fall off all at once*)

Ask students what the tree seedlings will need to grow big and strong. (*soil, sunlight, water*)

If there is time left, ask:

- Since trees do so many good things, it's important that we protect them. What can we do to help protect trees? (*recycle paper, plant new trees*)

Activity #2: Mystery Bag

Materials Needed: 4 Mystery Bags filled with various items

Ask students: What are some things we get from a tree? (*nuts, fruit, paper, furniture*)

Tell students we are going to play a game where we separate objects into two groups: one group will be items that come from trees, and the second group will be items that do not come from trees.

1. Stand up and walk around to each student OR provide each student with a Mystery Bag.
2. Allow a student, one at a time, to reach into the bag without looking and pull out an item.
3. Ask the student to decide if this item comes from a tree or not. As items are pulled from the bag, make 2 categories: one from trees and one not from trees, and have students place in the appropriate category.
4. Have kids continue until bags are empty or time has run out. When finished, place all items back in the bag.

Activity #3: Seed Dispersal

Materials Needed: Ziptop bags filled with pinecones, rice, and small paper plates; coconut, bucket, and water; apples, knives, and large plates; helicopter seeds and sugar bowl

Ask the students: what is a seed? Discuss seeds: all trees grow from seeds; seeds are kind of like babies and the tree that makes the seed is like the parent, or mom or dad. In order for the trees to grow, the seeds must have a way to **move or disperse away** from the parent plant so that the seed has its own space to grow and get sunlight. Since plants cannot walk away, they need to be clever and develop ways to move away from their parent plant.

Let's look at some examples of how trees protect their seeds:

1. **Bursting** – Pass out the ziptop bags with pine cones/plates/rice. Ask students to pick out the closed pinecone, and then to pick out the open pinecone. Tell them that when the pinecone is on the tree, it is kept moist by the tree. When the pinecone falls off the tree, the pinecone dries out and begins to open up. Place some rice in an open pinecone and show how when the cone opens, the seeds fall out of the pinecone and on to the plate.
2. **Water, and drop and roll** – This is a coconut; it is a round, hollow ball. Coconut trees are often found along the water. Let's look and see what will happen if the coconut falls on the ground. Tell the students you are pretending to be a tree; drop the coconut on the ground, and ask, "What happens?" (*when a coconut falls to the ground, it will roll away from the parent plant*) Ask: what do you think would happen if the coconut falls in the water? Place the coconut in a bucket of water. Talk about how it will float away and then get washed up on shore away from the parent tree. Why does it float? (*it is hollow*)
3. **Animal** – Show the students an apple cut in half, to expose the seeds. Tell them that lots of animals are attracted to the fruit of trees because they like the sweet taste of the fruit. The animals will either pick up the fruit and carry it to another location and eat the fruit and then leave the seeds in a new location, OR they will eat the fruit and the seeds, and then poop them out at a new location.
4. **Wind** – Explain that maple trees have a beautiful method of moving their seeds away from their parent tree; this dispersal method is called a helicopter seed. Give each child a helicopter seed and have the students hold them up and allow them to fall. Help the kids notice two things about these seeds: (1) the seeds move away from where they start. Now drop the seed in a small bowl of "sand" (sugar). (2) Help the kids notice that the seed of the

helicopter seed is driven down into the sand much like you might plant a seed.

Activity #4: Leaf Rubbings

Materials needed: Leaf plates, crayons, paper, Leaf Fandexes, leaf sample, Planting My Tree and dot-to-dot handouts

Hand out the leaf plates and ask students to select one. Hand out the leaf Fandexes and ask students to find a picture of the leaf shown on their leaf plate. Pass around the Willow leaf sample and ask students to find the Willow leaf page in the Fandex.

Next hand out the paper and demonstrate doing a leaf rubbing by placing the paper on top, and using the crayon on its side.

Have students write their name on the leaf rubbing. If there is still time, students may draw a picture of planting their tree, and/or complete the leaf dot-to-dot sheet. For the Planting My Tree handout, ask students to draw themselves planting a tree, and what the tree will need to grow. *Note:* if running out of time, these can be sent home with students.