

Power Plant!

(adapted from Project Learning Tree's Tree Factory)



Students will have the opportunity to “become” a plant by role-playing the different parts and seeing how they function as a whole.

Elaborate/Apply

Supplemental Reading

The Busy Tree

By Jennifer Ward

How Plants Grow (Time for Kids Nonfiction Readers)

By Dona Herweck Rice

The Magic School Bus Gets Planted: A Book About Photosynthesis

By Lenore Notkin

Grade Levels:

K, 1, 2, 3

Curriculum Correlation:

NCSCS—Science

K.L.1.2

1.L.1.1, 1.L.1.2

3.L.2.1

Materials:

Paper & pencils (optional)

Duration:

30 minutes

Location:

Outdoor Study Area for activity; Classroom for extension;

Procedure:

1. Introduce a Group Brainstorm: What do trees and plants need to grow? (sunlight, air, water, soil, space) Collect student ideas to review later in the activity.
2. Have the students observe and explore a tree and verbalize or write down everything they notice about the tree and its parts. Use the focus question “I wonder how this helps the tree grow?” Ask the follow up question “What does this remind you of about people?” (Think, Pair, Share)
3. How does the water get into the tree? (Roots) How does it get around to all of the parts of the tree? As they discuss each question, have them act out the answers. They can simulate roots by laying on their backs with their arms and legs spread out as they make slurping sounds and by chanting, “Gurgle, gurgle, gurgle. Water to the tree.”
4. How do trees and plants get the food they need? Do they chase after animals or grab things with their branches? (Plants make food in their leaves by using energy from the sun. This is called **photosynthesis**.) Students can imitate how the leaves make food by holding their arms up and opening and closing their hands chanting, “We make food; we make food.”
5. How does the food and water get from place to place? (Plants have stems to hold them up and support their leaves. Trees have a modified stem - a trunk, and branches to support the leaves). The trunk of the tree also contains the “veins” or “pipes” of the plant that move the water and food to different parts. Have the students feel how solid the trunk and branches are on the tree. They can pretend to be the trunk or stem by standing up strong and tall, tightening their muscles and saying, “I am the heartwood, I support.”

Power Plant!

(adapted from Project Learning Tree's Tree Factory)



6. How do they stay protected from bugs? (The bark of the tree protects it from pests and disease. Like our skin, the bark keeps the “veins” of the tree safe from harm.) Have the students feel the bark of the tree and describe what it feels and looks like. They can act out the role of bark by forming a circle and linking arms or holding hands with all students facing out. They can shout, “Bark, bark, bark!” like protective guard dogs.
7. Physical Demonstration—Using their bodies, ask them to relate the parts of plants and trees to the parts of a human body and how they each work in a similar fashion. Roots=feet and toes to hold the plant in place; trunk=body and bones to help the plant stand up strong; *xylem and phloem=veins of the plant, moving food and water to all parts*; bark>skin to protect the tree from damage and insects; leaves> hands to make food.
8. Next, put all of the plant parts together to build a “Power Plant.” Split the students into three smaller groups, one being the roots, one being the bark, and the last being the leaves. The root group will stand close together linking arms and chanting “Gurgle gurgle gurgle. Water to the tree.” The bark group will form a circle around the roots, join hands, and shout, “Bark, bark, bark!” The leaves should stand at various distances around the bark chanting, “We make food; we make food” while opening and closing their hands.
9. Review by asking the students how a plant or tree is similar to a factory. Ask them what different departments are this “factory” and what jobs are done by each.
 - A. Roots Department - the plant is anchored to the ground and water is absorbed from the soil.
 - B. Leaves Department - use sunlight, air, and water to manufacture food for the plant. When the plant is able to get enough food it can grow and produce more leaves, flowers, and even fruits and nuts/seeds.
 - C. Stem/Trunk Department - Supports the branches and leaves; contains all of the “pipes” or “veins” that transport the food and water around the plant.
 - D. Bark Department - perimeter defense of the plant, keeping it protected from pests and disease.

Extensions:

Have the students draw what the inside of the “Power Plant” or “Tree Factory” might look like based on the jobs done by the different departments.

Learning Targets:

1. Understand the basic structures of plants and how those structures are used to acquire resources and fulfill the plant’s basic needs.