Life Science: Exploring Trees

Activity Overview

Children visit a living tree and use their senses to **observe, explore,and compare** the parts of the tree. They learn about the tree as a habitat, and look for signs of animals in and around the tree. Children collect items such as leaves, twigs, and cones that they can use in further investigations in the classroom.

*Science process skills are in bold.

Underlying Science Concepts:

- Trees are living things.
- Trees have different parts (structures) that help them live.
- A tree can be a home (or habitat) for animals.

Materials:

- Access to a living tree
- A "special" leaf (one that you will show the children to get them thinking about trees)
- Magnifying lenses (optional)
- Large plastic bag for collecting tree items (optional)

Getting Ready:

- Before taking the children outside to visit a tree, check the area ahead of time to make sure it is a clean and safe area.
- If needed, arrange for extra adults to go with you on the walk to visit a tree, especially if it is located outside of the schoolyard. A larger group of children could be divided into smaller groups and visit different trees in the same area.
- Collect a "special" leaf from a tree to use in *Engage* to introduce the topic of trees. Choose a leaf that is distinctive in some way, such as very large, colorful, an unusual shape, or texture.

Engage

- Show the children the special leaf you brought to the classroom. Tell them a story about where you found it, the tree it came from, what you noticed about it, and why you wanted to share it with them. Convey a sense of excitement about discovering the leaf and appreciating its uniqueness.
- Encourage the children to share their prior knowledge and experiences about trees by asking them questions such as:
  - *Have you ever seen a special tree?*
  - *What are some things you might see on a tree?*
  - *What do you like about trees?*
  - *Why are trees important?*
- You may choose to record their comments.
- Tell the children that they are going to explore a real tree outside to observe what it looks like, how it feels and smells, and to look for signs of animals on the tree. Go over safety rules and give any necessary directions.

This is a time to share ideas, don't worry about teaching facts at this point or correcting any misconceptions.

Some teachers use Turn-and-Talk strategy to allow all children to actively share ideas with a partner before sharing out with the whole group.

Explore

- Take children to explore the living tree. Bring a large plastic bag for collecting and magnifying lenses for closer observations (optional).
- Have the children use their senses to investigate the different parts of the tree and describe how they look, feel, and smell. Listen to sounds. Hug the tree!
- Help the children to identify the different parts of the tree (roots, trunk, branches, leaves, bark, etc.).
- Look closely to discover! You might find insects, spiders, holes in the trees, sap, etc. Notice special features such as fruits, buds, distinctive odors, or nibbled leaves.
- If possible, have the children help collect things from the ground that came from the tree such as leaves, twigs, cones, seeds, flowers, or pieces of bark. Be mindful not to harm the tree.

You may want to bring a camera with you and take photos to remember what the tree looked like on the first visit. Visiting the tree throughout the year is a valuable experience. Keep a record of the children's observations to document seasonal changes.

Reflect

- Back in the classroom, share observations of the tree. Ask questions such as:
  - *What was something interesting you noticed?*
  - *What would you like to learn about trees?*
- Record their questions and comments and use them to plan further explorations.
- Sing "The Trees are Growing High" song.

Ideas for Further Explorations

- After the visit to the tree, children can draw pictures of the tree to record their observations. You could let the children do observational sketches of the tree outside if it is in an accessible area.
- If you collected tree items while outside, spread them on a table and investigate them by touching, smelling, and using magnifying lenses to observe them more closely.
- Compare leaves collected from one or more trees. How are they different? How are they the same? Notice the colors, sizes, and shapes of different leaves.
- Invite the children to make a sketch of a leaf. Observational drawing invites children to be careful observers of the world around them and to take notice of details that can lead to important learning.
- Make leaf rubbings by taping a piece of paper over a leaf, for best results use large-size crayons (with the paper wrapping peeled off) and hold the crayon sideways while rubbing. Identify the veins and stem.
- Create a classroom model of a tree. Involve the children in designing and creating the tree.

Guiding Questions

- *What do you see on the tree?*
- *Why does a tree need roots (trunk, branches, bark, leaves)?*
- *How does the bark feel?*
- *What colors do you see?*
- *How do the leaves smell?*
- *Are there any animals on the tree?*

Key Vocabulary

During the activities integrate the words below into your conversations. Children's vocabulary will build with practice.

- Trunk
- Bark
- Branches
- Roots
- Leaves
- Stem
- Veins
- Observe

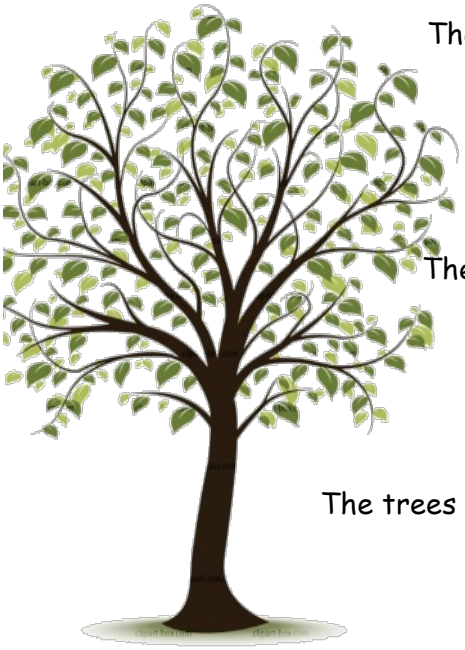
Teacher Tips

So many questions! If the children are full of questions, encourage this curiosity, but don't feel you must answer all of their questions now. Scientists ask lots of questions and are always asking more. It is alright not to know all of the answers! You can say things such as, "What a great question!" or "Let's find out together!" Explain that you could find out more by looking in a book, online, or asking a tree expert. Have books about trees available as well as both fictional and non-fictional books about animals that live in trees.

Magnifying lenses. If using magnifying lenses in this activity, allow children time for free exploration to practice using them beforehand.

The Trees Are Growing High

(Sung to the tune of "The Farmer in the Dell")



The trees are growing high. *(stretch arms overhead)*
The trees are growing high.
With soil and rain and sunny days,
The trees are growing high.

The trees are growing roots. *(press feet into ground)*
The trees are growing roots.
With soil and rain and sunny days,
The trees are growing roots.

The trees are growing bark. *(move hands up and down sides of body)*
The trees are growing bark.
With soil and rain and sunny days,
The trees are growing bark.

Add additional verses for leaves, fruits, or flowers.

Background Information for Teachers

There are two main types of trees: deciduous and evergreen. Deciduous trees lose all of their leaves for part of the year. Evergreen trees don't lose all of their leaves at the same time -- they always have some foliage.

Both people and animals rely on trees in many ways. Wood from trees and paper pulp are important resources for people. Trees help to keep our air clean and our ecosystems healthy. Fruits, nuts, seeds, leaves, sap, bark, and nectar provide food sources. Trees provide habitats (homes) for animals of all sizes. Aphids and caterpillars live on leaves. Beetles, ants, and spiders are often found in crevices in the bark. Branches support bird and squirrel nests. Larger animals such as owls, raccoons, and opossums can live in holes in trunks of trees, or under the roots.

Parts of a Tree

Roots grow underground. They help support the tree and keep it from tipping over. Their main job is to collect water and nutrients from the soil and to store them for times when there isn't as much available.

A Trunk holds up branches and gives the tree its shape and strength. The trunk transports water and nutrients.

Branches support the leaves, buds, and flowers.

Bark covers the outside layer of the trunk, branches, and twigs. The bark protects the tree from insects, diseases, storms, and extreme temperatures.

Leaves and **Needles** use sunlight to produce food for the whole tree in a process known as photosynthesis. As a by-product, trees release oxygen into the air. This is very important, as all animals and humans need oxygen to survive. Leaves contain a substance called chlorophyll that gives leaves their green color.