

Let's Look at Trees

Nº. 6

PRIMARY

Science | Fine Arts



LESSON SUMMARY

Students will go on an outdoor adventure to compare the physical characteristics of trees, shrubs and other plants.

Activity Information

Grade Level	Primary
Estimated Duration:	One class period (for outdoor activity)
Materials:	Toilet paper rolls or paper towel rolls (optional: binoculars, magnifying glass)
Setting:	Outdoors
Key Vocabulary:	Photosynthesis, roots, stems, leaves, pistil, stamens, deciduous, coniferous, forest, canopy

Teacher Background

There are many types of plants – shrubs, trees, bushes, etc. Each one has an important role to play, either as habitat for a species, as a source of food or as a way of creating oxygen for other plants, animals and people. Trees are more important than people often give them credit for; they are much more than a decorative green plant or a place for a tree house.

Trees provide shelter for people, animals, and other plants. Trees also produce large amounts of oxygen, absorb carbon dioxide and help regulate the gases in the atmosphere. We all need oxygen and clean air to survive.

Humans breathe in oxygen (O_2). When we breathe out, carbon dioxide (CO_2) is released. Plants do the opposite. Through photosynthesis, plants produce O_2 . They take in CO_2 and release O_2 , cleaning the air by removing poisonous CO_2 .

There are many different types of plants. If you envision a garden, you might find flowering plants, ornamental grasses, shrubs and trees. They are similar because they all use photosynthesis and have some sort of root system, but they differ in their appearance. Some trees have needles, like White pine. Some trees have leaves, such as maple and poplar. Some trees look the same all year, such as fir and pine. These are called “coniferous” trees. Others, called “deciduous” trees, are affected by the change of seasons, dropping their leaves in the fall and growing buds in the spring. The following are some basic parts of a plant:

- **Roots** anchor plants and absorb water and nutrients needed for growth.
- **Stems** carry water and nutrients from the roots to the leaves.
- **Leaves** are the food-making factories of green plants (photosynthesis). This is where CO_2 and water, in the presence of chlorophyll (the green pigment) and light energy, are changed into glucose (a type of sugar). This energy rich sugar is the source of food used by most plants.
- **Flowers** perform the reproductive function of plants. Flowers have some basic parts. The female part is the pistil. The pistil is usually located in the centre of the flower and is made up of three parts: the stigma, the style and the ovary. The stigma is the sticky knob at the top of the pistil. It is attached to the long, tube-like structure called the style. The style leads to the ovary, which contains the female egg cells called ovules. The male parts are called stamens and usually surround the pistil. The stamen is made up of two parts: the anther and the filament. The anther produces pollen, the male sperm cells. The filament holds the anther up.

During the process of fertilization, pollen lands on the stigma, a tube grows down the style and enters the ovary. Male sperm cells travel down the tube and join with the ovule, fertilizing it. The fertilized ovule becomes the seed and the ovary becomes the fruit.

What do plants need to grow? They need air, light, water, space, correct temperature, nutrients and time.

Teacher Preparation

Find a local forested area (schoolyard, nature trail, or park) which will serve as your lesson destination. Look for one with several species of trees (deciduous, coniferous) and shrubs. If there are no trees nearby, contact a local nursery; many will lend potted coniferous or deciduous trees for educational activities.

Ask your students to bring in a toilet paper roll or paper towel roll from home. They can then decorate and design their own "Super Eye Spyer" telescopes.

ACTIVITY

Step 1 Take your students to your chosen outdoor destination. Find a suitable area to sit down around a generously sized tree that has several identifiable characteristics. Discuss the different parts of a tree:

Deciduous

Has leaves
Leaves drop in fall, grow in spring
Often considered a hardwood
Maple, poplar, oak

Coniferous

Has needles all year around
Has cones
Often considered a softwood
Evergreen trees, fir, pine

This is a hands-on activity. Have your students feel the bark of the tree, the needles from pine or spruce trees, the keys from maple trees, etc. If you have magnifying glasses or binoculars, have the students take a closer look at the parts of the trees.

Step 2 Once your students understand some of the characteristics of trees, move to an area where there is an example of a shrub. Ask your students how trees and shrubs grow differently. Some examples: shrubs have multiple stems, while trees have one trunk; shrubs grow out in the open, while most trees do not need as much sun; shrubs do not grow as tall as trees. Can they see anything else?

Step 3 Explain to your students that they are going to take another look at the trees. Tell them to lie on their backs and use their paper roll telescope to look into the canopy (the crowns of the trees). What do they see? Is there more than one kind of tree? What are the differences? How can you tell them apart? Are there any animals using the trees? What are the signs?

Step 4 Return to the classroom and ask each student to draw a plant that they saw during their outdoor adventure. Explain that their picture must clearly show the characteristics of either a tree or a shrub.

Evaluation

Using the illustrations of the plants drawn during the outdoor adventure, have each student label the major parts of their plant. The students can then put all the illustrations together to create a picture of a forest or wooded area.

Extensions

Ask your students to look around their yards or local communities to compare the number of trees versus shrubs. This could be done by creating a bar graph comparison. They should observe the trees and shrubs and try to determine the different types of species that depend on those trees and shrubs (e.g. are there birds, moths, bugs, squirrels, etc.? What about other plants?)