

Tree Observation & Identification

BACKGROUND INFORMATION

Forests are complex environments dominated by trees. The height and canopy stature of trees maintain the forest habitat below. The canopy sustains the habitat by producing the food and protecting the layers underneath, such as the understory, shrub, and ground layer.

There are many forests throughout the world, including tropical rainforests, coniferous (evergreen) forests and temperate deciduous forests (the forest most commonly found in the Northeastern United States). Forest type depends on different factors such as soil, climate, and precipitation. The various plants and animals found in the forest are dependent on the previously mentioned factors. Every forest has a unique structure of biotic (plants, animals) and abiotic (rocks, sun, soil, water) components working together to form an ecosystem. Although there are numerous naturally occurring forests in the world, Central Park's woodlands are unique because they are completely man-made.

Olmsted and Vaux, Central Park's designers, modeled Central Park's woodlands after the Adirondacks. Each year, many thousands of people visit Central Park's 127 acres of woodland areas and enjoy hiking, bird-watching, or just relaxing. Central Park's woodlands also provide a refuge for plants and animals that have no place in an urban environment like New York City. In order to protect the wildlife and the fragile ecosystem, the woodland managers work continuously to keep the area healthy and enjoyable for all to visit.

VOCABULARY

Abiotic: anything that is not living; an inorganic resource

Biotic: any living thing

Cambium Layer: growth rings form at the thin cambium layer between the bark and solid wood; in spring, a narrow, soft part of the layer forms

Consumer: an organism that feeds off of another organism

Decomposer: an organism that breaks down dead matter

Ecosystem: living and nonliving components coming together to form a working environment

Food Web: a sequence showing the intricate feeding relationships between organisms in a particular ecosystem

Forest: an ecosystem where the dominant plant types are trees; there are different kinds of forest types—tropical rain forest, boreal coniferous forest, and eastern deciduous forest

Habitat: an environment where a plant or animal is able to meet its basic needs of survival and is able to successfully reproduce

Invertebrate: any organism without a backbone

Phloem: the inner bark that carries the food to the other parts of the tree

Photosynthesis: the process in which plants make food using sunlight and carbon dioxide

Producer: anything that uses the sun's energy to process food

Sapwood: the light-colored rings toward the outside that carry water from the roots to the leaves, when food is made for the tree

Vertebrate: any organism with a backbone

Xylem: a complex tissue in the vascular system of plants that consists of vessels, tracheids, or both, usually together with wood fibers; functions chiefly in conduction of water and dissolved minerals, but also in support and food storage; typically constitutes the woody element



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LEARNING FROM OBSERVATION

Summary:

In this activity, students will be divided into four teams; each team must explore two trees. Exploration includes collection of leaves, fruit, and bark and leaf rubbings. Information will be recorded in tree journals provided by educator. Students will begin to understand that there are many different kinds of trees in Central Park and how to classify them. They will learn the scientific names of trees that they explored, and they will create an oak tag chart to take to school.

Materials: trays, crayons, journals, pencils, tape, tree identification cards or booklets

Activity:

PART A—TREE EXPLORATION

Rules:

- Any items collected must be found on the ground (i.e., no pulling off leaves, fruit, or bark from live trees or any other plants!)
- Exploration time should be spent exploring, not playing
- Each team explores two trees

Begin by telling children that they are going to be "tree detectives" for the day. What do detectives do? Today, they will go in search of evidence to figure out the identities of the trees they will be investigating. Explain that they are going to explore trees using journals to record their information in order to identify them. Use "True/False Questions" to get students thinking about the importance of trees.

Setup:

- Educator should "label" four trees with letters
- Students will be divided into four groups
- Educator and students will quadrant off with quadrant rope

Make sure to:

- Hand out trays, crayons, journals, and pencils to adults — they will be responsible for distributing to their respective groups and getting pencils and crayons back after end of the activity.
- Discuss methods of exploration in detail:
 - a. Groups are to match leaves found on the ground with leaves on their trees in order to determine whether that leaf belongs to their trees.
 - b. Each student must do a leaf and bark rubbing as well as sketching of seed/fruit and silhouette (crown shape) from their trees
 - c. Each group collects leaves and seeds/fruits that match their trees and brings materials back to tarp at the end of the activity.
 - d. Each group should come up with a name for the trees explored.
- During tree exploration educator should "float" between groups making sure they are following proper procedures and answering any questions students or adults might have.

After students are finished exploring and recording information, call everyone back to the tarp.



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PART B—TRADITIONAL TREE IDENTIFICATION

Groups contribute materials and information for the first tree they explored:

- Begin activity by asking each group the name they made up for their first tree and writing it on the oak tag chart (under the letter corresponding to that tree). Ask them how they arrived at the name of their tree. Teams probably named their trees based on leaf or silhouette shape, or maybe even on the way the trees made them feel.
- Now it is time to tape leaves and fruit of the different trees onto the corresponding cells on the chart. For better group management, teacher could ask groups to give him or her materials from their first tree. When finished, show chart to class and ask them to notice the different leaves and fruit. Are they the same?

Students will now finish their tree detective job by identifying their trees:

- How do scientists name trees? (leaf shape, bark type, crown shape, a person's name, the place where a tree is discovered, etc.). During this activity, students will be using mostly leaf shape and fruit type as identifying characteristics, but it is important to notice other characteristics as well.
- Discuss why it is important to identify trees correctly:
 1. So that you can properly care for them (trees have different environmental requirements)
 2. So that you can prune them properly
 3. So that you can plant them in appropriate places
 4. So that you can answer questions from the park users about the plants that you take care of
 5. So that you can gain a better understanding of how landscapes change from season to season and year to year
- Distribute tree identification cards/booklets and allow groups to identify their trees.
- Reassemble group and go over tree names (write them on tree chart under corresponding letter).
- Teacher will take chart back to the classroom.



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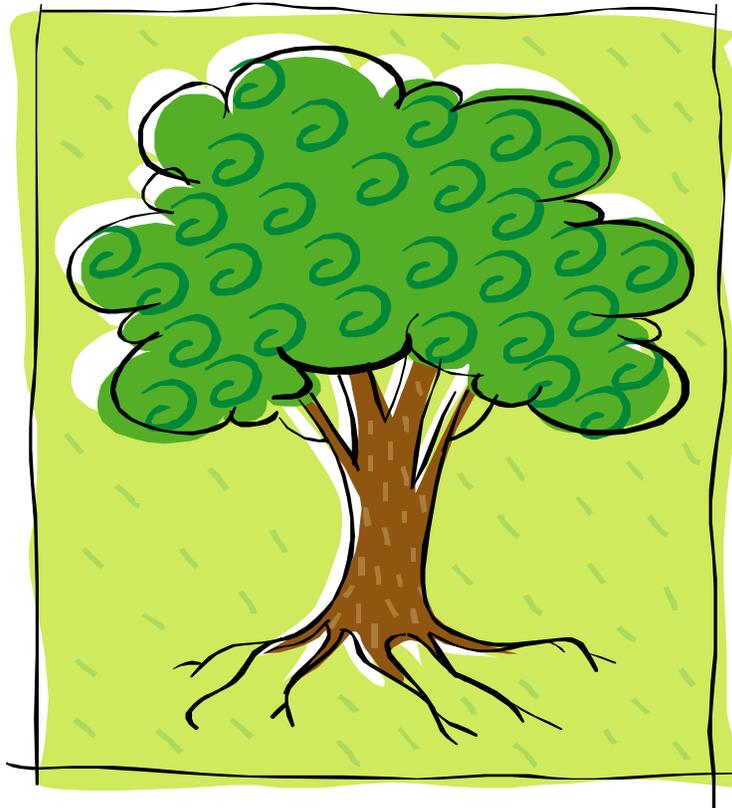
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PART B—NON-TRADITIONAL TREE IDENTIFICATION, USING SENSES OTHER THAN SIGHT

Students, in pairs, will use their senses of touch, smell, and hearing to identify trees:

- Explain to students that they will be working in pairs and leading each other around the area to identify trees. Explain that they will be blindfolded, one at a time, and should treat each other with respect and that they should not betray the trust of their partner. Demonstrate to students that they will blindfold their partner, and then lead him or her, *carefully*, to a tree in the area.
- The blindfolded partner will do all of the following:
 1. touch the tree, feeling if the bark is smooth, rough, has deep grooves, or none at all
 2. smell the tree
 3. hug the tree or feel how big around it is
 4. feel if there are any low-hanging branches or leaves
 5. feel whether the trunk of the tree forks at a low height or not
- Once the blindfolded partner has examined the tree and is confident that he or she can find it again, the other partner should lead the blindfolded partner back to where they started from, being careful not to trip on anything along the way. Once back at the point of origin, the lead partner should carefully remove the blindfold and let the other partner see if he or she can find the tree that was examined. The lead partner should verify whether or not the blindfolded partner has found the correct tree.
- The two partners should then switch roles and repeat this procedure.



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Facts about Trees

- A tree is a woody plant much larger than other plants
- The first evidence of trees dates back 300 million years to the Devonian period on earth
- The first trees actually took the shape of large ferns approximately 40 feet tall named Eospermatopteris
- A popular city tree, the ginkgo, is one of the oldest common trees dating back 200 million years
- Young or old, nearly all of the trees in Central Park were planted
- There are approximately 26,000 trees, belonging to 148 species, in Central Park
- Olmsted and Vaux preferred foreign trees for Central Park. Because of this, almost half of the trees originally planted were non-native.
- The most numerous tree species in the park is the black cherry, followed by American elm and pin oak
- Scratching your loved one's name onto tree bark can eventually kill the tree. Many Central Park trees have suffered, as inscriptions into the tree's bark prevents nutrients from flowing up and down it.
- Deforestation has led to the loss of 94.6% of original U.S. forests



Tree Observation & Identification

True/False Questions Central Park Tree and Flower

- | | True | False |
|--|-------|-------|
| 1) Trees have leaves. | _____ | _____ |
| 2) A forest is a place with many trees and plants. | _____ | _____ |
| 3) Trees and plants make oxygen. | _____ | _____ |
| 4) We need oxygen to breathe. | _____ | _____ |
| 5) Paper is made out of wood. | _____ | _____ |
| 6) Deforestation means cutting down trees and destroying forests. | _____ | _____ |
| 7) Fewer trees mean less oxygen for us to breathe. | _____ | _____ |
| 8) Willow trees have long, sagging branches. | _____ | _____ |
| 9) Oak trees have simple, round leaves. | _____ | _____ |
| 10) We can help save forests by using recycled paper products and recycling the ones we use. | _____ | _____ |