

Ages:

8 to 12

Identifying Trees in Winter

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Main idea: Trees have distinguishing characteristics that enable identification even in winter.

Objective: Children will learn several features to observe in order to identify trees in winter. Children will identify several trees common to our area based on careful observation of those features.

Materials:

- q Small branches from several deciduous trees to illustrate the different branching patterns and terminal buds.
- q Small branches from several evergreen trees to illustrate pine needle bundles, needles borne singly, needles borne on a stem or not on a stem, the scale-like foliage of arborvitae or cedar, and differences among cones.
- q Book or chart showing characteristic silhouettes of common trees.
- q *Know Your Trees* (4-H Bulletin 85) has a winter key that identifies hardwoods based on twigs and buds. There is an online version of the winter key available at:
<http://cyrus.bh.cornell.edu/tree/winterkey.htm>

q Other tree handbooks for reference.

Motivator: To get at the idea of identification through different features, ask children how they might recognize someone they know who was far away, for example across a field. (You might elicit posture, shape, size, and silhouette.) Then ask how do you recognize someone who is nearby, for example, someone in the group. (More specific features will be elicited – blue eyes, freckles, curly hair, etc.)

Explain that trees, too, have features and can be recognized by careful attention to their features. Scientists have organized many of these features into what's called a taxonomic key for identifying trees.

Questions: Before you begin the activity, ask the children what features they might look at if you were trying to distinguish one tree from another in winter? Elicit as many characteristics as possible.

Activity:

1. Beforehand, the instructor should locate 4 to 6 nearby trees that will be easy to identify based on their particular characteristics. Trees such as red pine, white pine, hemlock, spruce, sycamore, oak, maple, and ash lend themselves to using the distinguishing characteristics presented to the students in Step 3. For example:

q The two pines have a different number of needles in their clusters.

q The hemlock and spruce have different cones, and the hemlock's needles are on short stems while the spruce needles lack stems.

q The sycamore lacks a terminal bud and has a zigzag branching pattern while the oak has a terminal bud and an alternate branching pattern.

q The maple and the ash are the only common local large trees with opposite buds and branches.

2. Post a number on each of the trees selected. Make a tree identification card for each tree. Each card should have the tree's name, the descriptive characteristics needed to identify that tree (as stated, for example, in Step 1), possibly a silhouette sketch of the tree, and any other prominent characteristics. (For example, the ash has stout twigs or the sycamore has peeling bark high on its trunk.)
3. Have the children examine the silhouette poster, the branches and cones looking for differences among them. Show them or help them discover the different branching patterns. Point out branches with terminal buds and those without. Have them count pine needles in bundles and observe needles borne singly on or without stems. Have them describe how the cones differ. Everyone should have hands-on experience and practice at this time.
4. Divide children into as many groups as trees you have numbered. Give each group a tree identification card and instruct them to examine each numbered tree until they are sure they have found the one on their card.
5. After all groups have found their trees, gather the entire group together and go from tree to tree having each group point out the distinguishing characteristics of their tree.

Learning checks: In addition to the built in check in Step 5, instructor can have the group examine other nearby trees and demonstrate their knowledge of branching patterns, terminal buds, and needle arrangement.

Background: Basic knowledge about tree identification and familiarity with distinguishing characteristics of the 4 to 6 trees chosen for the activity.

Vocabulary:

Terminal bud: The bud found at the end of a twig.

Opposite: Arrangement of leaves or buds so that they connect to branches at points directly across from each other.

Alternate: Arrangement of leaves or buds where they are staggered or not placed directly across from each other on the twig.

Zig-zag branches: Change direction at each bud, creating a zig-zag pattern.

Needle cluster or bundle: A group of needles attached together at one point to a twig.

Taxonomic key: A guide that helps you find the name of an organism, usually by asking sets of paired questions.

Extensions:

q Have groups switch cards and identify other trees (writing down their answers) before moving on to Step 5.

Number additional "distracter" trees so students must consider and observe more trees.