

## Using dichotomous keys to identify leaves

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### **Objectives:**

1. Learning the identification of common Michigan trees
2. Learning to use a dichotomous key to identify characteristics of a subject or object in order to sort and name them

**Materials needed:** For student use: leaves, recording sheet/student, Tree Finder book (from ABNL sources), A Look at Michigan Leaves sheet

For teacher use: vocabulary list, chart for recording sheet demo, markers, laminated or pressed leaves if necessary, A Look at Michigan Leaves sheet and identification copy too

**Prior knowledge:** What are some things you already know about leaves?

Why can tree/leaf identification be useful? (helps evaluate the health of the forest, the kind of habitat available, the amount of biodiversity present, the kinds of trees animals use...)

**Building vocabulary:** use a variety of leaves (A Look at Michigan Leaves) sheet, ask, what do you notice about the leaves? List vocab words on the board as students use them in their description of the leaves. DO NOT interrupt them with the definition etc. - the point here is to get observations of differences between the leaves.

After a reasonable amount of descriptions, note the words you've written and clarify the meaning of those words, or when students used the meaning of a vocab word to describe, make the connection to the actual word we use and write it out. Introduce the remaining vocabulary words and their meaning/connections. (see attached list)

You will see some of these on the recording sheets and in the guide books we will use.

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### **Vocabulary List**

Dichotomous Key: a series of steps involving choices between sets of two characteristics of an item, leading to the identification of the item

simple leaf: one complete leaf blade, attaches to the woody stem of the tree

compound leaf: made of several leaflets attached to a flexible stem which attaches to the woody stem of the tree

leaflet: each of the leaflike structures that together make up a compound leaf

margins: the edges of leaves

serrated: describes a leaf margin with teathy structure

lobed: describes a leaf margin with a wavy structure

alternate leaf arrangements: leaves are staggered along the twig

opposite leaf arrangement: leaves are paired by twos, opposite each other, on the twig

whorled leaf arrangement: more than two leaves around each point along the branch

vein: raised ridges on a leaf

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Refer to vocabulary term **dichotomous key**

Advantages using a dichotomous key: usually easier to carry on a hike, saves time by eliminating characteristics your item does not have, notice more details

Model how to use a dichotomous key:

Have students stand on one group, sort themselves by tie or non tie shoes, then each of those groups sorts by shoes with red on them or not,(at this point you should have 4 groups) with those four groups, notice another characteristic of your class shoes, and sort one more time(buckles? Above ankle? Etc) show how each group gets smaller and may be down to one person named "tie, red, hightop shoe wearer"

Show: aliens, plant or animal example

Model using the recording sheet (from the alien key) then, distribute the recording sheets for each student.

Then distribute the key books to partners (2 students or 1 if you have odd numbers). Direct students to go to the back cover to notice a ruler. Skim pages 1-4, then look at page 5.

Distribute an assortment of leaves (or leaves of their own finding) , the pair of students chooses one leaf to begin with, proceeds through the key and recording sheet to the point of identification.

Move on to another leaf, and as many as you'd like them to use.

Debrief: no talking, walk around finding friends with matched leaves, when everyone is matched as is possible, groups take turns naming their leaf – do they all agree on the name??

Follow up: use the dichotomous key to identify the leaves on “Look at Michigan Leaves”

**Recording sheet**

Student name \_\_\_\_\_

Write the characteristic that sorts each step.	Write the characteristic that sorts each step.
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10

Draw a sketch of your leaf

Draw a sketch of your leaf

This leaf is from a \_\_\_\_\_ tree.

This leaf is from a \_\_\_\_\_ tree.