

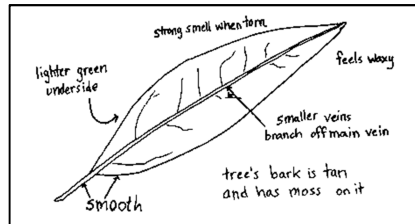
Using a Field Guide

You can have lots of fun exploring nature *without* a field guide. You can even make up your own names for organisms you find.

Using a field guide, you can find out the commonly-used names of organisms. This lets you explore nature with a wider community of people. You can communicate about and research organisms using the information you find in a field guide.

How to Use a Field Guide

First observe and take notes.



Start by observing your organism. Use words, pictures, and numbers to take notes. This will help you notice more. Comparing two similar organisms is also very helpful. After you observe your organism, you can use a field guide to identify it.

Lots of field guides have a section near the front that tells you how to use the guide. Read that section.

There are two main types of field guides that help you identify organisms: picture-matching guides and dichotomous keys. Both types are included here so you can practice using them.

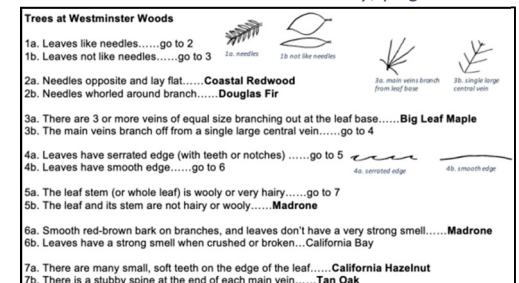
To use a picture-matching guide, find the picture that best matches your organism. Make sure to read any clues provided. Look closely at multiple pictures that might match. Also keep in mind that your organism might not be in your guide.

Picture-Matching Guide, page 6



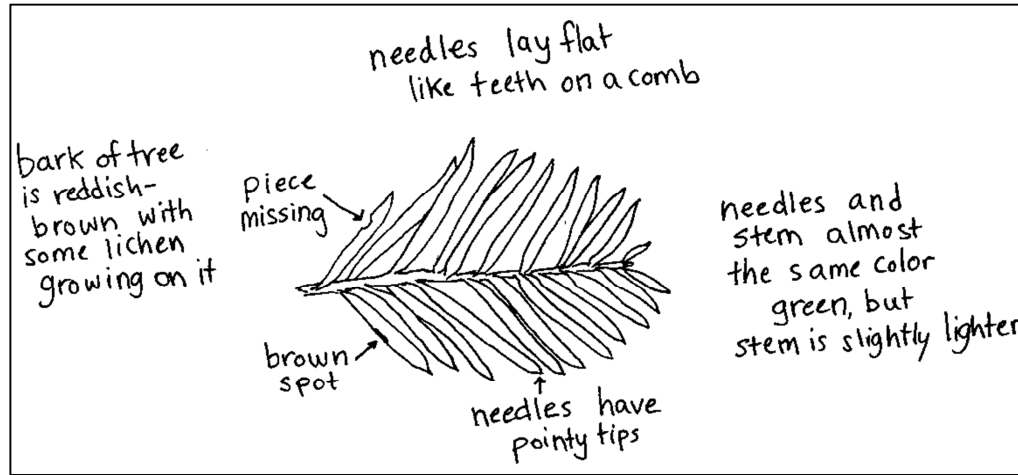
To use a dichotomous key, follow the sets of choices until you find your organism. You have to start with the first choice, then go where it leads you. Dichotomous keys are like flow-charts. After you find your organism, double-check the identification by looking at photos (online or in a larger field guide).

Dichotomous Key, page 4 and 5



Dichotomous Key Practice

Check out the dichotomous key on pages 4 and 5 and follow along as we practice. We'll use this picture of leaves from a tree at camp.



Start at the top of the dichotomous key. The first two choices are:

- 1a. Leaves like needles.....go to 2
- 1b. Leaves not like needles..... go to 3

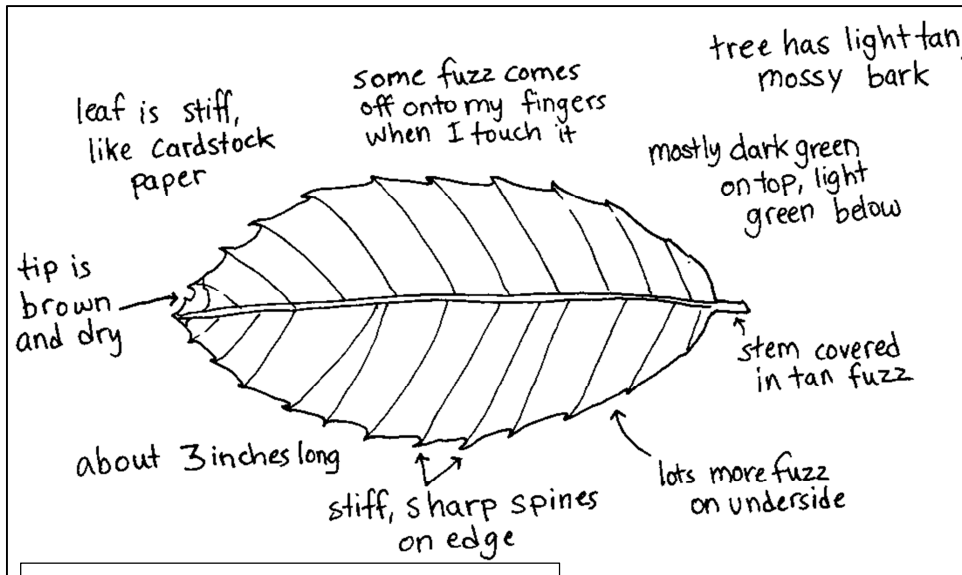
The leaves are like needles, so we'll go to 2.

Our next two choices are:

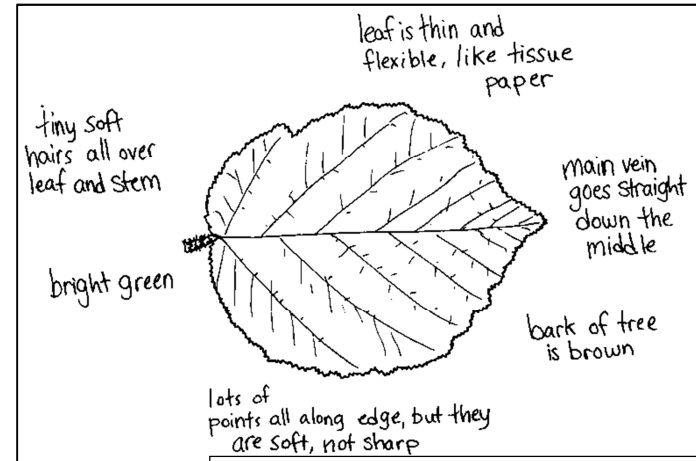
- 2a. Needles opposite and lay flat..... **Coastal Redwood**
- 2b. Needles whorled around branch.....**Douglas Fir**

The needles lay flat and are on opposite sides of the branch, not sticking out on top, bottom, and the sides (whorled), so we choose Coastal Redwood. Double-check the answer by looking at a photo in the picture matching guide.

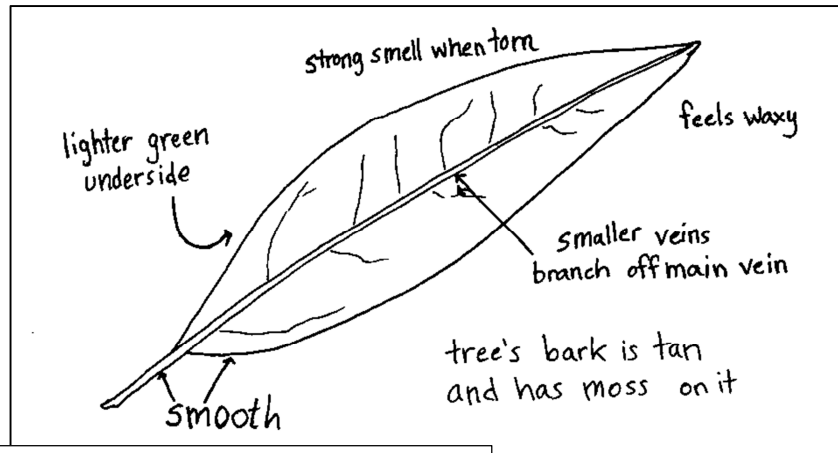
Here are some drawings of leaves from trees at Westminster Woods. Use these drawings to practice identifying trees using the dichotomous key and/or the picture-matching guide. (Check your answer on the last page of this handout.)



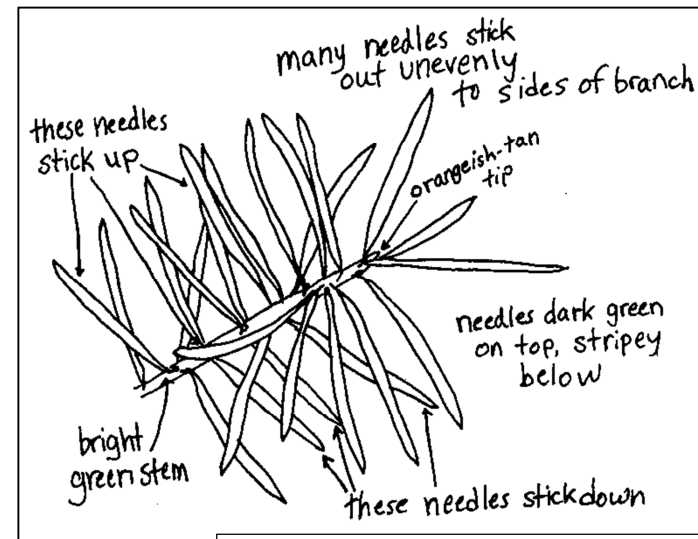
tree 1: _____



tree 2: _____



tree 3: _____



tree 4: _____

Dichotomous Key for Tree Identification

Use this key to identify trees from Westminster Woods. The next page of has the exact same information, but it's in a picture form to help you understand how a dichotomous key works.

Trees at Westminster Woods

1a. Leaves like needles.....go to 2

1b. Leaves not like needles.....go to 3



1a. needles



1b not like needles

2a. Needles opposite and lay flat.....**Coastal Redwood**

2b. Needles whorled around branch.....**Douglas Fir**



3a. main veins branch from leaf base



3b. single large central vein

3a. There are 3 or more veins of equal size branching out at the leaf base.....**Big Leaf Maple**

3b. The main veins branch off from a single large central vein.....go to 4

4a. Leaves have serrated edge (with teeth or notches)go to 5

4b. Leaves have smooth edge.....go to 6



4a. serrated edge



4b. smooth edge

5a. The leaf stem (or whole leaf) is wooly or very hairy.....go to 7

5b. The leaf and its stem are not hairy or wooly.....**Madrone**

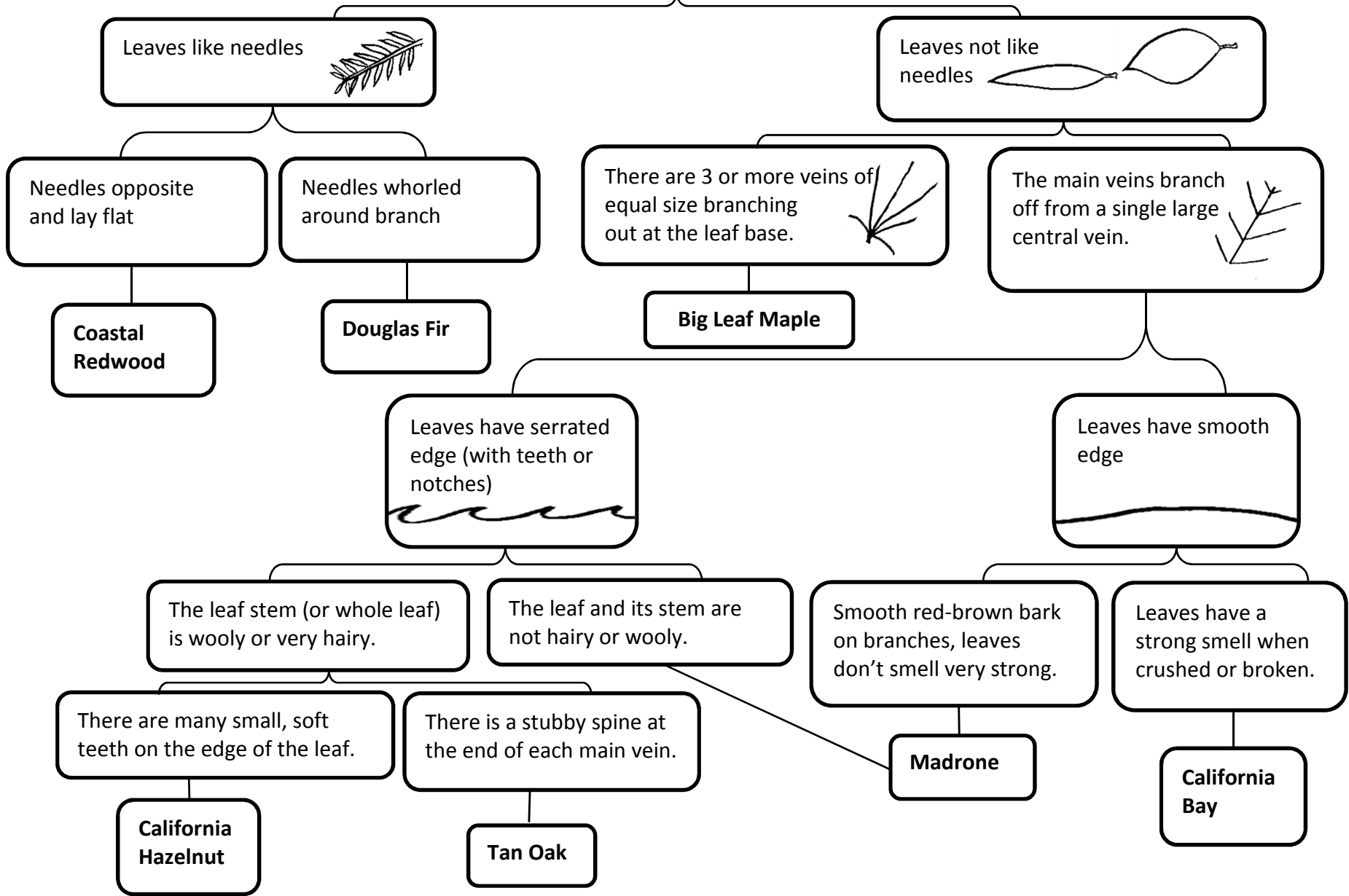
6a. Smooth red-brown bark on branches, and leaves don't have a very strong smell.....**Madrone**

6b. Leaves have a strong smell when crushed or broken...**California Bay**

7a. There are many small, soft teeth on the edge of the leaf.....**California Hazelnut**

7b. There is a stubby spine at the end of each main vein.....**Tan Oak**

Trees at Westminster Woods



Trees

at Westminster Woods

Young trees might look like bushes, but there are older trees nearby with the same kinds of leaves.



California Bay

The leaf has a strong smell when broken.



Canyon Oak

The leaf edges can be smooth or spiky.



Coast Live Oak

The leaves are humped up in the middle like an umbrella.



Tan Oak

The leaf is stiff and hairy.



Oregon Ash

The leaves usually grow in sets of 7.



Oregon Oak



Madrone

The bark is red and peely.
The leaf edges can be smooth or like a saw.



California Hazelnut

The leaves feel soft, like felt.



White Alder

The tree is usually near a stream.



Buckeye

The leaves grow in sets of 5 or 7.



Big Leaf Maple



Douglas Fir

The needles grow around the branch.



Coastal Redwood

The needles lay flat. They have points, but are not spiny.



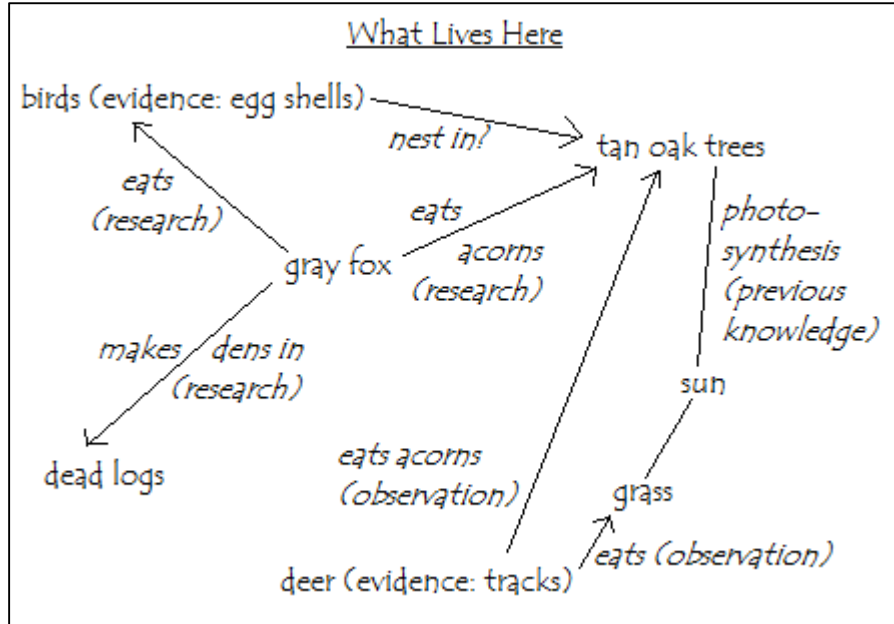
Nutmeg

The needles lay flat. They have hard, sharp spines at the ends.

Activities to Do with Field Guides

Biodiversity Inventory - Explore an area and make a list of the species you find there. (You can do this using names of species you make up or names you find in field guides.) If possible, do the same in another area. Compare your lists. What might be causing different species to grow or live in different areas? You might notice patterns, especially if you look at what plants are in many different areas. (Find the full activity and more ways to compare biodiversity in *How to Teach Nature Journaling* by John Muir Laws and Emilie Lygren, available at howtoteachnaturejournaling.com)

What Lives Here? - Explore an area, looking for evidence of what lives there. Use field guides to help you interpret the evidence and identify species. Write all the species you find evidence of scattered across a paper. Then make an ecosystem model: draw lines to show connections between species (such as



species) that eat, compete with, or decompose other species). You can include both connections you have observed and connections you research. You can add to your model by including non-living parts of the ecosystem. (This is a BEETLES activity, available at beetlesproject.org. Find the full activity at <http://beetlesproject.org/resources/for-field-instructors/what-lives-here/>)

answers for page 3:

- tree 1 - Tan Oak
- tree 2 - California Hazelnut
- tree 3 - California Bay
- tree 4 - Douglas Fir

Biodiversity Inventory

Trees at the Overlook

Douglas Fir
Coast Live Oak
Madrone
Bay
Oregon Oak
Buckeye
Knobcone Pine

Trees Where Ridge Road

Meets Tunnel Road
Big Leaf Maple
Redwood
Tan Oak
Douglas Fir

Maybe the trees are different because there is more sun at the overlook? Or the type of soil might be different? Or different micro-climate because it's on top of a ridge?