Plant Identification

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Douglas County Master Gardeners
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Why identify plants?

- curiosity
- ability to write and talk about plant
- ability to look up information about plant
- learn cultural requirements
- learn propagation methods
- learn common pest problems
- is it edible, medicinal, poisonous?

Botanical Nomenclature

- the systematic naming of plants
- developed by Carl Von Linne or Linnaeus in the 1700's and still used today
- plants names are primarily in Latin

Linnaeus developed a system with categories (taxa) that were increasingly more specific:

Kingdom
Division (Phylum)
Class
Order
Family
Genus
Species

Classification hierarchy of the common dandelion

- Kingdom Metaphyta
- Division (Phylum) Magnoliophyta
- Class Magnoliopsida
- Order Asterales
- Family Asteraceae
- Genus Taraxacum
- Species Taraxacum officinale

Common name vs. Scientific name

- Dandelion
- Taraxacum officinale

Reasons not to use common names

- Well known plants often have more than one common name
- not universal
- two or more plants may have the same common name
- many species, particularly rare ones, do not have common names

Carpinus caroliniana

- American hornbeam
- water beech
- blue beech
- ironwood
- musclewood

Nymphaea alba European White Waterlily

- 15 English names
- 44 French names
- 105 German names
- 81 Dutch names

- 245 total common names

Plant Classification

- Kingdom
- Division
- Class
- Order
- Family
- Genus
- Species

} Gardeners use these 3

Plant Classification

- Plant classification is the process of categorizing plants into groups with similar characteristics

- So far, there are over 1 million botanically different plants in existence named by the binomial system of nomenclature.

Which part of the plant is used for classification?






Plant Classification

Nearly all classifications are based on the sexual parts of the fruit and the flower.

Family

- A group of plants with similar characteristics, especially flowers, fruits, and seeds. The reproductive structures are used for distinction.
- The size of a family varies from 1 to 100+ genera.

e.g. Ginkgoaceae has one genus and one species, *Ginkgo biloba*

Rosaceae has 100 genera *(Malus, Spiraea, Rosa)*

Genus(plural genera)

- An assemblage of species having many structural similarities in common and closely related by descent from a common ancestor
- First word in a botanical name

Specific epithet

- second word in the botanical name
- often an adjective used to describe size, color, leaf shape, growth habit, origin of the plant or to commemorate a person

The specific epithet can give us hints about the plant:

- Cotoneaster horizontalis
- Coreopsis gigantea
- Clerodendrum thomsoniae
- Godetia grandiflora
- Cistus x purpureus
- Chionanthus virginicus

Species

- Genus + specific epithet
- basic taxonomic unit
- difficult to define
- group of organisms that have similar characteristics whose offspring have the ability to interbreed

The names of plants

The scientific name for a plant consists of two words:

1. Genus or generic name
2. specific epithet

} species

e.g. *Quercus garryana*

Writing plant names correctly

- scientific names should always be underlined or in italics
- the genus is capitalized, the specific epithet is not
- the name is only complete if it is followed by the name of the person who first described or named it

For example: Red Oak

Quercus rubra Linnaeus
or
Quercus rubra L.

Quercus rubra or Quercus rubra

Hybrids

Closely related but separate species interbreed
Hybrids are often sterile

- If a plant is a hybrid of two species, an x appears between the genus and specific epithet
- *Cornus* x *rutgersensis* (hybrid of C. florida and C. kousa)
- If a plant is a hybrid of two genera, an x appears before the genus
- xHeucherella (hybrid of *Heuchera* and *Tiarella)*

Hybrid

Platanus occidentalis crossed with *Platanus orientalis*

Plantanus x acerifolia
London plane tree

Plant species can be divided more specifically into:

- Variety
- Cultivar

Variety

- naturally occurring subset of species
- a plant which retains most of the characteristics of the species but differs in some identifiable, consistent way, i.e. flower color, plant size

Variety names

- Added to binomial, preceded by var.

- *Pinus contorta* var. *contorta* Shore Pine
- *Pinus contorta* var. *latifolia* Lodgepole Pine

Cultivar

- "cultivated variety"
- horticulturally developed and maintained
- distinguished by characters which are retained when reproduced

Cultivar names

written in plain text, capitalized and set off by single quotes

Viburnum opulus 'Roseum'

Viburnum opulus 'Roseum'

Viburnum opulus

Integrated Approach to Plant Identification

- Visual inspection of plant characteristics
- Photographic references
- Plant classification keys
- Expert advice

Collect information about what you see:

Herbaceous, conifer, broadleaved evergreen, deciduous?

Collect information about what you see:

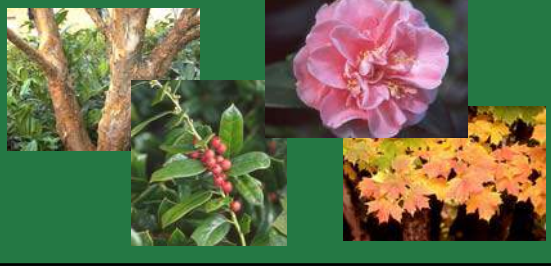
where does it grow?

Collect information about what you see:

What is the overall form of the plant?

Collect information about what you see:

What are the characteristics of individual plant parts?

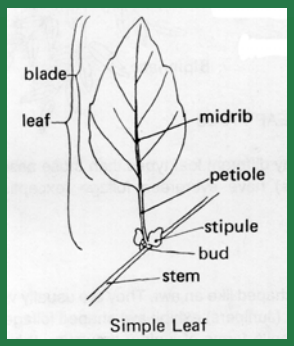


Leaf characteristics

Broadleaves

Needles

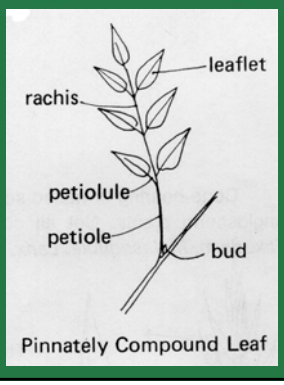
Leaf type: Simple



Simple Leaf

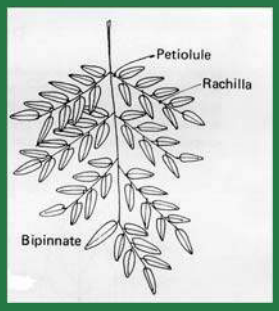
Leaf type: Simple

Leaf type: Compound

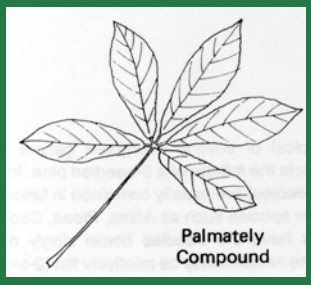


Leaf type: Pinnately Compound

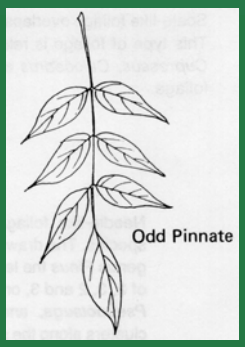
Leaf type: Bipinnately Compound

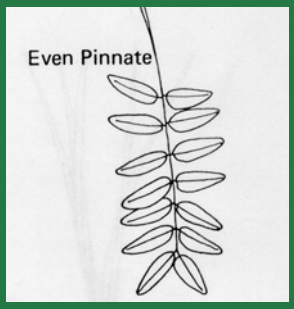


Leaf type: Palmately compound

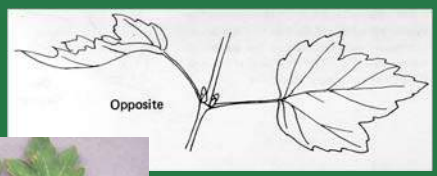


Leaf type: Odd vs. Even Pinnate

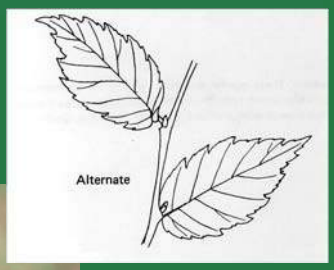




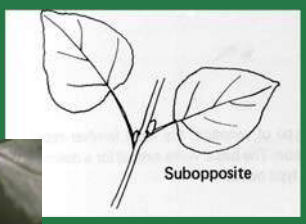
Leaf Arrangement: Opposite



Leaf Arrangement: Alternate



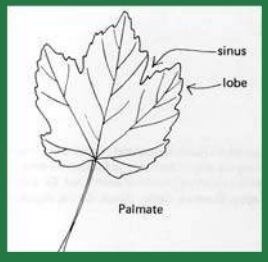
Leaf arrangement: subopposite



Leaf Arrangement: Whorled

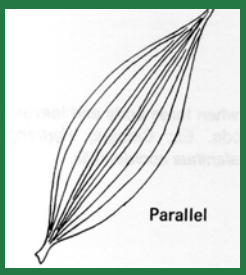
Venation: Pinnate

Venation: Palmate



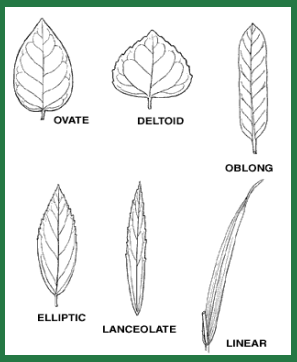
Venation: Dichotomous

Venation: Parallel

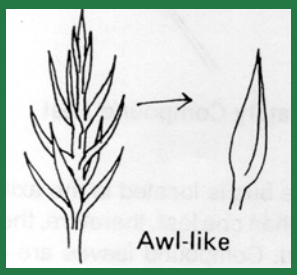


Leaf margins

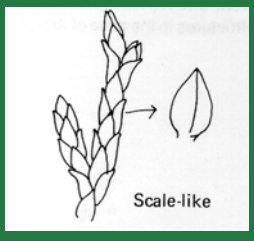
Leaf shapes



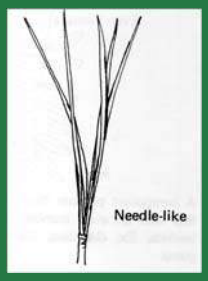
Needle type: awl



Needle type: scale



Needle type: clustered needles



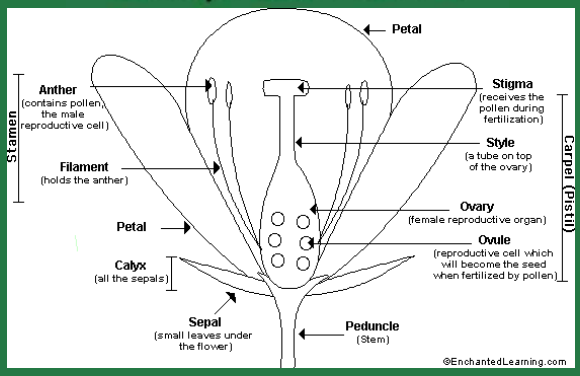
Needle type: single needles

Conifer I.D.: Cones




Other i.d.features - flowers

Complete flower




Cistus sp.


Echinachea purpurea

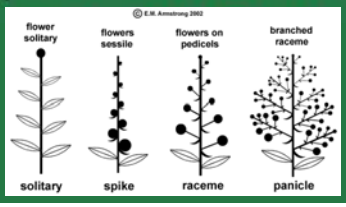

Rhododendron sp.

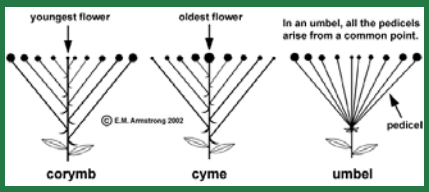

Albizia julibrissin


Iris


Campsis radicans

Types of Inflorescence





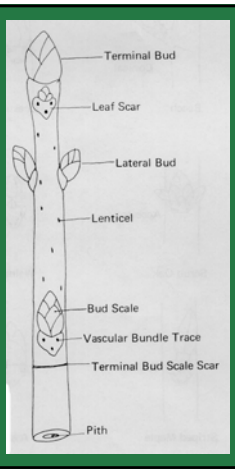
Kalmia latifolia

Buddleia davidii

Verbena bonariensis

Kniphofia uvaria

Stems and Buds



Other i.d.features: Buds

Other i.d.features: bark

Prunus serrula

Betula nigra

Other i.d.features: spines

Berberis julianae

Other i.d.features: fruit

Other i.d.features: fruit

Ficus sp.

Ribes cereum

Arbutus unedo

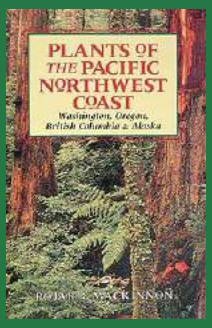
Using dichotomous keys to identify plants

A.
- B.
- BB.
  - C.
    - D.
    - DD.
  - CC.

AA.
- E.
- EE.
  - F.
  - FF.
    - G.
      - H.

A dichotomous key offers users a choice between two characters. By making a series of choices between two characters, a correct I.D. is made.

Plant Identification Resources: Native Plants



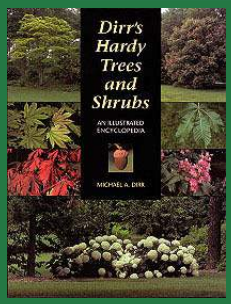
More resources

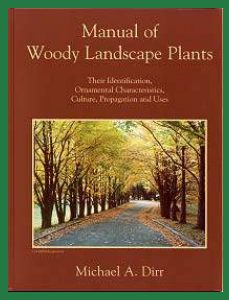
Oregon State University
Horticulture

Landscape Plants
Images, Identification, and Information
Volume 1 Copyright, Oregon State University, 1999-2004

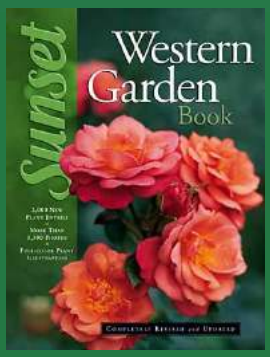
http://oregonstate.edu/dept/ldplants

More resources





More resources



More resources