

Use *Leaf Shapes* to identify a plant

The shape of a leaf can be a useful tool to identify plants, and paired with a dichotomous key they can help you identify all the things in your back yard.

In this activity you will learn how to make your own dichotomous key by observing the different shapes of leaves you find.

WHAT YOU NEED TO KNOW:

A. Leaf type

Leaves have different shapes that can tell them apart. **The leaf can be simple**, the whole leaf only has one blade, **or it can be compound**, the leaf is separated into many small leaflets.

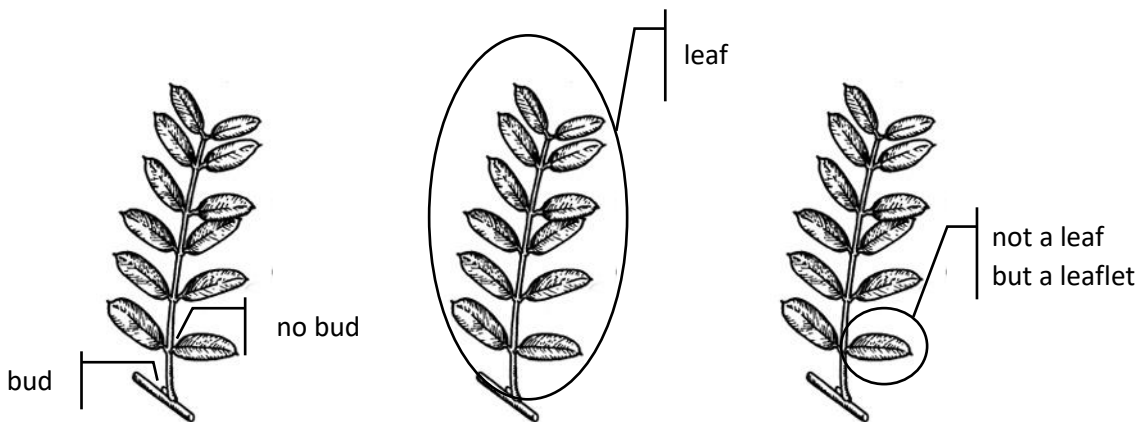


a. Simple leaf



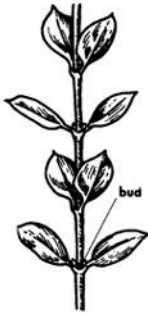
b. Compound leaf

How do you tell if it's a small leaf or a large leaf with many leaflets? Just look at where it attaches to the branch. Anything that comes after the bud is your leaf. If you don't see a bud then you are not looking at the whole leaf but a leaflet.



B. Leaf arrangement

The leaves can be arranged **opposite each other on the branch**, two leaves attach to the branch in the same place but one on each side, or **alternate**, only one leaf attaches to the branch in that place and they switch places as you look up the branch.



c. Opposite arrangement



d. Alternate arrangement

C. Leaf margin

The edge of a leaf is called its margin. And it too can have characteristics that help you identify your tree. Simply put, the edge can be **entire**, it has a smooth edge. It can be **serrate**, the leaf margin is made of small teeth. It can be **ciliate**, with tiny little hairs on the side or top or bottom of the leaf. Or it can be **lobed**, with large bumps making its margin.



e. Entire



f. Serrate



g. Ciliate



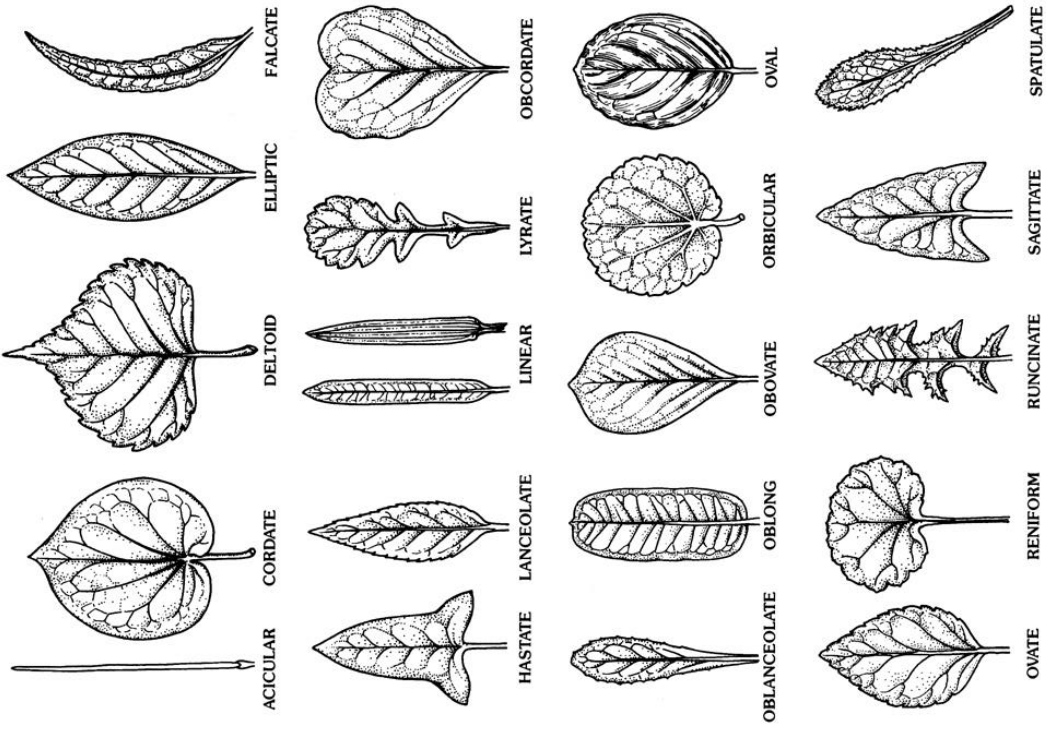
h. Lobed

Now you can use the different shapes of a leaf to create a dichotomous key to help you make and ID. Here is an example of a skeleton dichotomous key, yours will be different!

- | | |
|-------------------------------------|--|
| 1) Is it a simple leaf? | Go to 2) |
| Or a compound leaf? | Go to 5) |
| 2) Are the leaf arranged opposite? | Go to 3) |
| Or are the leaf arranged alternate? | Go to 4) |
| 3) Is the leaf margin entire? | <i>What plant in your yard would fit here?</i> |
| Or is the leaf margin serrate? | <i>What plant in your yard would fit here?</i> |
| 4) Is the leaf margin entire? | <i>Jojoba (for example)</i> |
| Or is the leaf margin serrate? | <i>Triangle-leaf Bursage (for example)</i> |
| 5) Are the leaf arranged opposite? | Go to 6) |
| Or are the leaf arranged alternate? | Go to 7) |
| 6) Is the leaf margin entire? | <i>What plant in your yard would fit here?</i> |
| Or is the leaf margin ciliate? | <i>What plant in your yard would fit here?</i> |
| 7) Is the leaf margin ciliate? | <i>Velvet Mesquite (for example)</i> |
| Or is the leaf margin entire? | <i>Blue Palo Verde (for example)</i> |

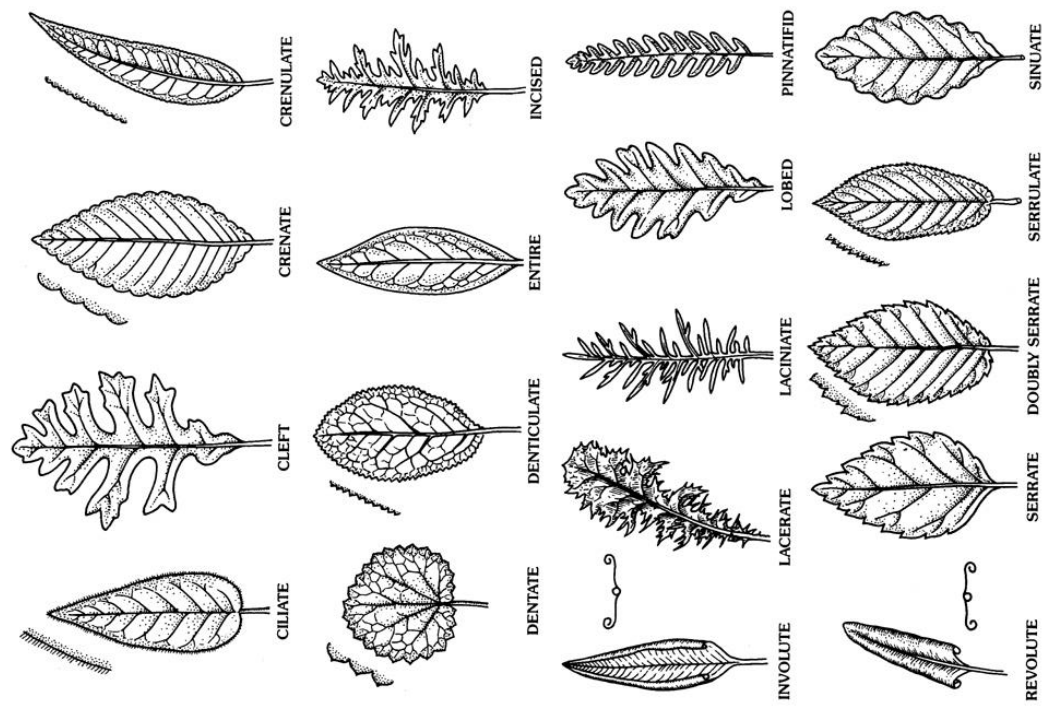
You may notice other differences that make it easier to tell plants apart. Don't hesitate to include those in your dichotomous key! Here are more leaf characteristics you can use.

PLATE 3. LEAF SHAPES



as published in Swink, F. and G. Wilhelm. 1994. *Plants of the Chicago region*. 4th ed. Indianapolis: Indiana Academy of Science.

PLATE 4. LEAF MARGINS



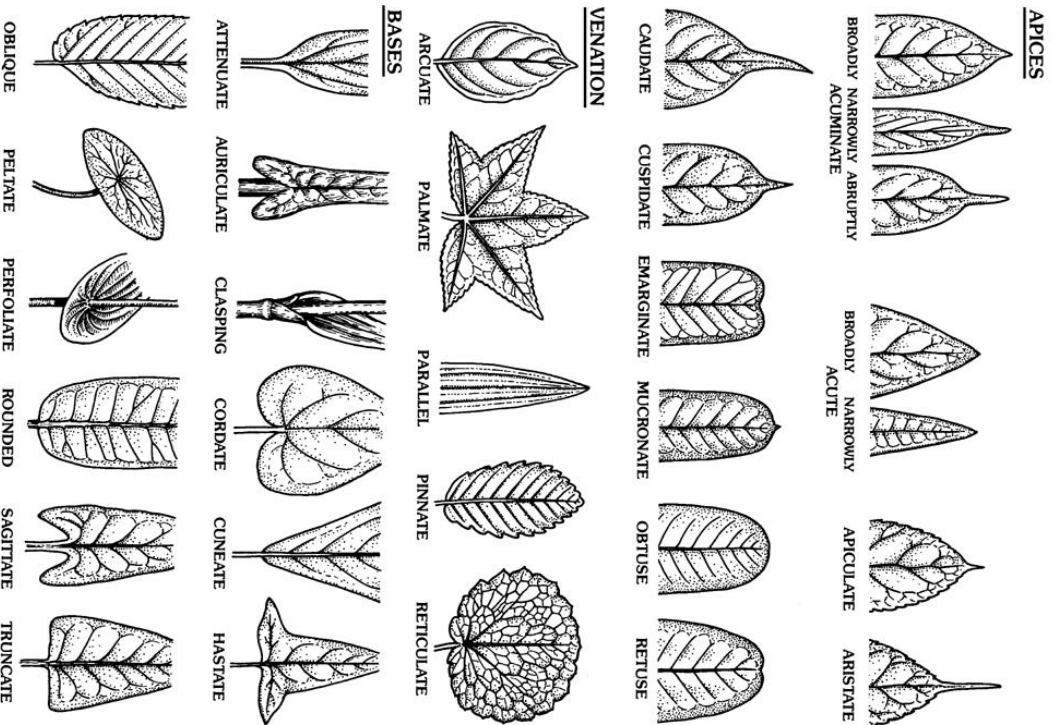
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PLATE 2. LEAF COMPOSITION, PARTS, AND TYPES



as published in Swink, F. and G. Wilhelm, 1994, *Plants of the Chicago region*, 4th ed. Indianapolis: Indiana Academy of Science.

PLATE 5. LEAF APICES, VENATION, AND BASES



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