

# Parts of a Plant

## LEAF TYPE

**Simple:** Single leaf attached to stem at bud

**Compound:** Leaf attached to stem at bud and subdivided into leaflets



simple



compound

## LEAF ARRANGEMENT

**Opposite:** Leaves across from each other on stem

**Alternate:** Leaves staggered along stem



opposite



alternate

## LEAF VENATION PATTERNS



palmate



pinnate



parallel

## LEAF MARGIN TYPES



entire



serrated



lobed

## TERMS

**Exfoliating:** Bark peels off in shreds or in thin layers

**Hybrid:** A cross between two or more similar plants, can be naturally occurring or man-made

**Pubescent:** Covered with short, soft hairs

**Trifoliate:** Three-leaved

**Variegated:** Striped, margined or mottled with colors other than green where green is normal

# Leaf Identification

Examine the leaves in your collection to answer the following identification questions. Use the identification terms and *Parts of a Plant* graphic for clues.

1. Which tree(s) has **compound** leaves?

\_\_\_\_\_

2. Which tree(s) has leaves with **opposite** arrangement?

\_\_\_\_\_

3. Which tree(s) has leaves with the following leaf vein patterns?

A. **Palmate** \_\_\_\_\_

B. **Pinnate** \_\_\_\_\_

C. **Parallel** \_\_\_\_\_

4. Which tree(s) has leaves with the following leaf margin types?

A. **Entire** \_\_\_\_\_

B. **Serrated** \_\_\_\_\_

C. **Lobed** \_\_\_\_\_

**Our Mission:** Holden Forests & Gardens connects people with the wonder, beauty, and value of trees and plants, to inspire action for healthy communities.

**Our Vision:** All communities transformed into vibrant places where trees, plants, and people thrive.

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# Leaf Trail Rules

- Collect only on the designated trail, from marked trees or groups of trees. If possible, collect from leaves that have already fallen.
- Make only one leaf collection per group/family.
- There are 26 deciduous trees (trees that lose their leaves) marked with numbered tags and flagging tape.
- Use the map in this brochure and the trail markers to guide yourself along the trail.
- This is an easy trail and the approximate walking and collecting time is 1½ hours.

Share a few of your identified leaves on social media and use the hashtag **#HoldenLeafTrail**  
What characteristics helped you identify them?



As you follow the Leaf Trail, look for the trees with numbered signs under them.

1. **JAPANESE ZELKOVA** *Zelkova serrata* – Native to Japan. A good choice for a shade tree.
2. **HOP HORNBEAM** *Ostrya virginiana* – Dense, strong wood; bark has long vertical “scratch” marks.
3. **TULIPTREE** *Liriodendron tulipifera* – Named for its distinctive tulip-shaped flowers. One of our straightest forest trees, it can grow to 150'. Native Americans use wood to make dugout canoes. It is also called Yellow Poplar.
4. **PAWPAW** *Asimina triloba* – Drooping, yellow, fall foliage with edible fruit that tastes like a banana.
5. **AMERICAN SYCAMORE** *Platanus occidentalis* – Commonly seen along rivers and creeks. Bark is a mosaic of green, gray, brown, and white patches; 1” fruit balls, persist throughout the winter.
6. **RED MAPLE** *Acer rubrum* – Also known as swamp maple. Petioles, seeds and emerging spring leaves are red.
7. **SWEETBAY MAGNOLIA** *Magnolia virginiana* – Semi-evergreen; thick leaves with whitish fine hairs on underside; aromatic spicy foliage and twigs. Grows best in wet soils; native to eastern coastal U.S.
8. **REDBUD** *Cercis canadensis* – An understory tree with heart-shaped leaves; 2”-3” long brown pods and reddish-purple flowers in April; a member of the legume family.
9. **COMMON PERSIMMON** *Diospyros virginiana* – Yellow-orange fruit is very edible by humans and wildlife when it is softened by a hard frost in late fall.
10. **WILD GOOSE PLUM** *Prunus hortulana* – Small bushy tree with simple, serrated leaves. During fall, leaves lighten to a bright green then turn red.
11. **RIVER BIRCH** *Betula nigra* – Light cinnamon very thin, exfoliating bark; well suited to wet areas; borer resistant.
12. **PAPER BIRCH** *Betula papyrifera* – Chalky white bark marked with black; peels into thin paper-like layers, hence the common name; Native Americans made canoes and buckets from the tree.
13. **TREMBLING ASPEN** *Populus tremuloides* – The most widely distributed tree in North America. Flattened petioles allow the leaves to “tremble” in the wind.
14. **BITTERNUT HICKORY** *Carya cordiformis* – Sulphur-yellow buds. The leaf is compound; be sure to collect the whole leaf.
15. **WHITE OAK** *Quercus alba* – Slow-growing, long-lived, close grained wood. It is the best all around hardwood in America.
16. **SWEETGUM** *Liquidambar styraciflua* – Spiny round fruit; corky wings on twigs. The resin produced by the tree was historically used for medicinal purposes. Resin currently used in the production of turpentine in South America.
17. **STEWARTIA** *Stewartia pseudocamellia* – A small tree, native to Japan, this tree makes an excellent ornamental patio tree with its white camellia-like flowers in July and beautiful orange-red fall foliage.
18. **DAWN REDWOOD** *Metasequoia glyptostroboides* – A deciduous conifer thought to be extinct until a few specimens were discovered in China in 1941. Now heavily propagated and commonly found in the nursery industry.
19. **SHINGLE OAK** *Quercus imbricaria* – Its easy to split wood was used by early pioneers to make shingles. The only native oak to Ohio with simple, non-lobed leaves with entire margins.
20. **KATSURA** *Cercidiphyllum japonicum* – One of the most enjoyed features of the katsura tree is its candy-like fragrance during fall as the leaves change color.
21. **NORTHERN RED OAK** *Quercus rubra* – Large and rapidly growing, the bitter tasting acorns are not favored by squirrels.
22. **VARIEGATED SWEET GUM** *Liquidambar styraciflua* ‘Variegata’ – White or yellow area of leaf lacks chlorophyll giving a two-toned appearance; the whole leaf does not photosynthesize so variegated plants tend to be less vigorous.
23. **PAPERBARK MAPLE** *Acer griseum* – Trifoliate leaves; cinnamon brown, exfoliating bark; native to central China.
24. **SUGAR MAPLE** *Acer saccharum* – A major component of northeast Ohio forests, sap is collected and boiled to make maple syrup; it takes 40 gallons of sap to make one gallon of maple syrup.
25. **AMERICAN BEECH** *Fagus grandifolia* – A tree with smooth gray bark; cigar-shaped buds; three-sided beech nuts form in pairs in a prickly burr.
26. **TUPELO** *Nyssa sylvatica* – Also known as black gum; glossy red fall foliage; bluish-black fruit is relished by wildlife.