

HOW TO IDENTIFY TREES AND SHRUBS

with Groundwork London



How to use this guide

What is a key?

A key is a series of questions that lead you to your answer, i.e. the name of your plant.

Why use a key?

A key helps you to **separate plants**, based on their **characteristics**. You are more likely to remember a plant if you spend time looking at it.

How to use the key

This key allows you to identify plants using **only their leaves**. When the leaves of two species are very similar this key uses other features, such as flowers or seeds to help distinguish between them. This key follows four easy steps:

1. Choose a leaf that is **representative** of all the leaves on the plant. If you use a leaf that is uncharacteristic then you may have problems keying out the correct plant.
2. Using the **master key**, decide on the shape of your leaf and go to the correct section. For example:

Are the leaves divided into lobes, but not completely separated?**F**

If your leaf is lobed then you must go to this section in the **main key**.

3. The **main key** is **dichotomous**, meaning you are confronted with a choice between two contrasting alternatives. For example:

1. Do the leaves have a hairy underside?	2
Do the leaves have a hairless underside, or only a few hairs?	5

If you answer **yes** to one of these questions then you go to that step. For example, if your plant's leaves are hairy on their underside then proceed to step **2** in that section. After further choices you will eventually reach an entry that describes your plant.

In many cases, because a plant has so many defining features, more than one character may be given. For example:

1. Are the leaves hairy? Are the twigs hairy? Do the leaves have toothed edges?	2
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Sometimes neither of the alternatives fully agree with you leaf. In such cases try the alternative where a **majority** of the characters agree with your plant.

Because plants are so variable, some may key out more than once. When this happens don't be put off if you come to the same conclusion via a different path.

4. Once you have keyed out a plant you can check your answer using **images** at the back of this guide. These have been arranged according to the leaf shapes in the master key.

If you have not used a key before, start by taking a plant that you know, such as an oak and see if you can the right answer.

Good luck!

Master Key

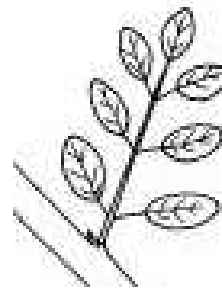
Are the leaves **needle-like** and **flattened**?A



Are the leaves like **small pointed scales**, completely covering the stem?B



Do the leaves have **several leaflets** arranged **along the leaf-stalk** in a ladder-like formation?C



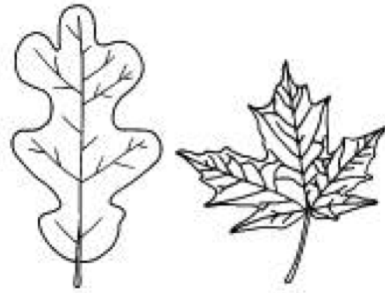
Do the leaves have **three leaflets** that **fan out from the top of the stem**?D



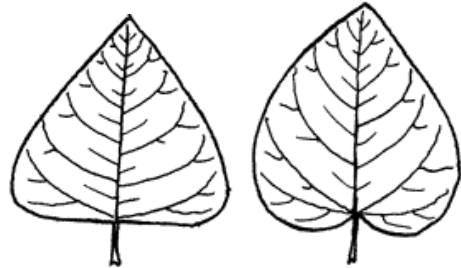
Do the leaves have **several leaflets** that **fan out from the top of the stem**, in a bicycle spoke-like formation?E



Are the leaves **divided into lobes**, but not completely separated?**F**



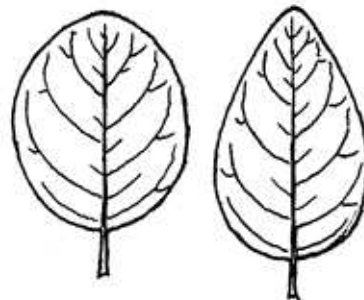
Are the leaves shaped like **an ace-of-spades**?**G**



Do the leaves appear to have been **cut across the top**?**H**



Are the leaves **round-oval** i.e. are they less than twice as long as they are broad?**I**



Are the leaves **elongated**, i.e. are they more than twice as long as they are broad?**J**



A. The leaves are needle-like and flattened

1. Do the leaves grow together in pairs?.....2
Do the leaves grow singularly?.....3

2. Is the bark grey-brown? Are the leaves long and drooping?
.....**Corsican Pine**
Is the bark orange-brown? Are the leaves more upright?**Scot's Pine**

3. Is the plant an erect, free standing tree? Is the plant spineless?4
Is the plant a sharply spiny shrub? Does the plant form impenetrable
thickets?**Gorse**

4. Do the older twigs have very short side shoots, with clumps of leaves?
.....5
Do the older have twigs long side shoots, with leaves that are spread
out?7

5. Are the leaves pale-green beneath? Are the young twigs yellow to
orange?6
Are the leaves dark green beneath? Are the young twigs dark brown?
.....**Cedars**

6. Are the twigs pale yellow? Are the leaves pale green?
.....**European Larch**
Are the twigs dark brown? Are the leaves grey-green?**Japanese Larch**

7. Do the leaves have a round sucker-like base, similar to a toilet plunger?
.....8
Do the leaves have a narrow base?9
8. Are the leaves bright green? Do the leaves smell of oranges when
crushed?**Giant Fir**
Are the leaves blue-green? Do the leaves stick out to make the twig
hedgehog-like?**Noble Fir**
9. Is there a little peg left behind on the twig when a leaf is removed?**10**
Is the twig smooth when a leaf is removed?**11**
10. Are the leaves blue-green, with pointed tips? Are there two whitish lines
along the underside of the leaves?**Sitka Spruce**
Are the leaves dark green?**Norway Spruce**
11. Do the leaves stick up and out sideways so the twig looks like a
hedgehog?**Douglas Fir**
Do the leaves lie in relatively flat along the stem, i.e. they don't look like
a hedgehog?**12**
12. Are the leaves stalked? Are there two whitish lines along the underside
of the leaves?**Western Hemlock**
Are the leaves directly attached to the stem? Are the white lines absent
of the needle undersides?**Yew**

B. The leaves are like small pointed scales, completely covering the stem

1. Are the leaves whitish beneath? Are the round cones small?.....
.....**Lawson's Cypress**
Are the leaves green below? Are the round cones large?.....
.....**Leyland Cypress**

C. The leaves have several leaflets arranged along the leaf-stalk, in a ladder-like formation

1. Do the leaflets grow in opposite pairs along the stem?.....**2**
Do the leaflets grown in an alternate arrangement along the stem?**3**
2. Do the leaves have notch at the tip, as if the tip has been inverted?
.....**False Acacia**
Do the leaves taper into pointed tip?**Walnut**
3. Do the leaves have only 2 or 3 pairs of leaflets?**4**
Do the leaves have more than 3 pairs of leaflets?**7**
4. Are the stems covered in sharp thorns?**5**
Are the stems smooth and not covered in thorns?**6**
5. Are the thorns strongly hooked, like an eagle's beak?**Dog Rose**
Are the thorns gently hooked?**Field Rose**

6. Is the plant free standing?**Elder**

Does the plant climb up the stems of other plants?**Traveller's Joy**

7. Do the leaves grow in opposite pairs along the twigs? Are the leaflets finely toothed?**Ash**

Do the leaves grow in an opposite arrangement along the twigs? Are the leaflets deeply toothed?.....**Rowan**

D. The leaves have three leaflets that fan out from the top of the stem

1. Are the leaves at the end of long stalks? Are the twigs silvery and softly hairy? Is the plant a small, woody tree?**Laburnum**

Are the leaves at the end of very short stalks, and appear to clasp the stem? Do the stems have 5 ridges on? Is the plant small, dense and bushy?**Broom**

E. The leaves have several leaflets that fan out from the top of the stem, in a bicycle spoke-like formation

1. Are the leaves made up of 3-5 broad leaflets? Are the stems covered in spiny thorns? Is the plant small and often scrambling over other plants?**Bramble**

Are the leaves made up of 5-7 elongated leaflets that taper to the end of the stalk? Is the plant woody, large and free standing?**Horse Chestnut**

F. The leaves are lobed, i.e. they are divided but not completely separated

1. Do the veins fan out from the top of the leaf-stalk, in bicycle spoke-like formation?2
Do the veins protrude from the main stem, in a ladder-like formation?9
2. Do the leaflets grow in an alternate arrangement along the stem?3
Do the leaves grow in opposite pairs along the stem?.....4
3. Are the leaves bluntly lobed? Are the leaves grey-white and woolly beneath? Are the twigs woolly?.....**White Poplar**
Are the leaves sharply lobed? Do the lobes have sharp teeth? Are the leaves green and hairless beneath?**London Plane**
4. Is the plant climbing up the stems of other plants?5
Is the plant erect and free standing?6
5. Are the leaves tough, leathery and shiney? Are the leaves dark green with pale veins?**Ivy**
Are the leaves this and subtle? Is the plant roughly hairy? Are the leaves coarsely toothed? Are the stems 4-angled? Do the stems twine anti-clockwise?**Hop**
6. Are the leaves softly hairy beneath, especially on the veins? Are the leaves small?7
Are the leaves hairless? Are the leaves large?8

7. Do the leaves have blunt, round edges? Are the twigs softly hairy?
.....**Field Maple**
Do the leaves have sharply toothed edges? Are the twigs smooth?
.....**Guelder-rose**
8. Do the leaves have many blunt teeth?**Sycamore**
Do the leaves have only a few sharp teeth?**Norway Maple**
9. Are the leaves broadest below the middle of the leaf?**10**
Are the leaves broadest at or above the the middle?**11**
10. Are the leaves made up of sharply pointed and toothed lobes?
.....**Wild Service Tree**
Are the leaves divided into 3-5 blunt lobes?**Hawthorn**
11. Are the leaves grey-white and woolly beneath? Are the twigs woolly?
.....**Grey Poplar**
Are the leaves green beneath?**12**
12. Are the leaves attached to the twigs by a long stalk?**13**
Are the leaves attached to the twigs by a very short stalk?
.....**Pedunculate Oak**
13. Are the lobes pointed? Are the leaves deeply cut to half-way to the main
vein or more?**14**
Are the lobes rounded? Are the leaves divided to less than half way to
the main vein?**Sessile Oak**

14. Are the twigs green-brown? Do the lobes end in short points at the tips?
.....**Turkey Oak**

Are the twigs red? Do the leaves turn red in autumn? Are lobes long and very sharply pointed?**Red Oak**

G. The leaves are shaped like an ace-of-spades

1. Do the leaves have two lobes at the bottom of the leaf, which are below the end of the leaf-stalk?**2**

Are there no lobes at the bottom of the leaves? Do the leaves have an oval-triangular outline?**6**

2. Do the leaves have single-toothed edges? Are the twigs hairless? Are the leaves on the end of long stalks?**3**

Do the leaves have double-toothed edges? Are the twigs hairy?**Hazel**

3. Do the stems grow in an approximate straight line? Is the plant a single tree?**4**

Do the stems clearly grow in a zig-zag formation? Are the stems red? Does the plant form dense thickets?**Japanese Knotweed**

4. Are the leaves hairless beneath, except for tufts of hairs along the veins?**5**

Are the leaves softly hair beneath?**Large-leaved lime**

5. Do the leaves have a few tufts of whitish hairs beneath? Are they sometimes covered with honey-dew from aphids?**Common Lime**

Do the leaves have a few tufts of reddish hairs beneath?**Small-leaved Lime**

6. Are the leaf-stalks flattened?7
 Are the leaf-stalks round?10
7. Are the leaves broadest below the middle of the leaves?8
 Are the leaves broadest at or above the middle of the leaves? Are the leaves grey-white beneath?**Grey Poplar**
8. Are there no warts at the top of the leaf-stalks?9
 Do the leaves have warts at the top of the leaf-stalks?
**Hybrid Black Poplar**
9. Are the leaves longer than they are broad?**Black Poplar**
 Are the leaves broader than they long?**Lombardy Poplar**
10. Is the plant erect and free standing?11
 Is the plant climbing up the stems of other plants?**Ivy**
11. Are the leaves toothed?12
 Are the leaves untoothed? Do the stems clearly grow in a zig-zag formation? Are the stems red?**Japanese Knotweed**
11. Are the leaves hairy, especially beneath? Are the twigs hairy? Do the leaves have single-toothed edges?**Downy Birch**
 Are the leaves and twigs hairless? Are their white warts on the twigs? Do the leaves have double-toothed edges?**Silver Birch**

H. The leaves appear to have been cut across the top

1. Do the leaves have two lobes at the bottom of the leaf? Do the leaves have a tip? Are the twigs hairy?**Hazel**

Do the leaves taper into the leaf-stalk? Do the leaves have no tip? Are the twigs hairless?**Alder**

I. The leaves are round-oval, i.e. they are less than twice as long as they are broad

1. Do the leaves grow in an alternate arrangement along the twigs?**2**

Do the leaves grow in opposite pairs along the twigs?**19**

2. Do the leaves have smooth, toothless edges?**3**

Do the leaves have toothed edges?**5**

3. Are the leaves evergreen, thick and tough?**4**

Are the leaves thin and subtle? Do the leaves have soft hairs around the edges?**Beech**

4. Do the leaves have a woolly grey-white underside? Are the stems grey-brown and covered in short pale brown hairs? Are the teeth irregular around the edges?**Holm Oak**

Are the leaves shiny? Do the leaves have regular sharp spines around the edges?**Holly**

5. Do the leaves have a hairy underside?6
 Do the leaves have a hairless underside, or only a few hairs?14
6. Do the leaves have two lobes at the bottom of the leaf, which are below the end of the leaf-stalk? **Hazel**
 Are there no lobes at the bottom of the leaves?7
7. Do the leaves have a grey-white underside? Are the leaves symmetrical where they meet the leaf-stalks, at the bottom of the leaves?8
 Do the leaves have a green underside? Are the leaves asymmetrical where they meet the leaf-stalk, with one side higher than the other?12
8. Do the leaves irregular and sharp teeth?9
 Do the leaves have small, blunt teeth?10
9. Are the leaves evergreen, thick and tough? Are the stems grey-brown and covered in short pale brown hairs?**Holm Oak**
 Are the leaves thin and subtle? Are the stems green and covered in short green hairs?**Whitebeam**
10. Do the twig stems have ridges under the bark when the bark is peeled back? Are the leaves rolled in at the edges?11
 Are the twig stems smooth under the bark when the bark is peeled back? Are the leaf edges not rolled in?**Goat willow**

11. Are there two small leaflets growing at the base of the leaf-stalk? Are the leaves very wrinkled?**Eared willow**
- Are there no, or very small, leaflets growing at the base of the leaf-stalk? Do the leaves have rusty coloured hairs growing beneath?
.....**Grey Willow**
12. Are the leaves rough on the upper surface when stroked?
.....**13**
- Are the leaves smooth on the upper surface when stroked?
.....**Small-leaved Elm**
13. Are the leaves oval in outline? Are the leaf-stalks short? Does one side of the leaf base overlap and hide the leaf-stalks?**English Elm**
- Are the leaves rounded in outline? Are the leaf-stalks long? Do the leaf bases not overlap the leaf-stalks?**Wych Elm**
14. Do the the leaves have double-thoothed edges?**Hornbeam**
- Do the leaves only have single-toothed edges?**15**
15. Are the leaf-stalks round?**16**
- Are the leaf-stalks flattened? Are the leaves almost circular?
.....**Aspen**
16. Do the leaves clearly taper into pointed tip?**17**
- Do the leaves have a blunt tip?**18**
17. Are the twigs thorny? Is the plant a shrub forming dense thickets?
.....**Blackthorn**
- Are the twigs without thorns? Is the plant a large shrub or small tree?
.....**Wild Plum**

18. Are the twigs thorny? Do the leaves have short hairs on veins beneath?
.....**Crab Apple**
Are the twigs without thorns? Are the leaves softly hairy beneath?
.....**Cultivated Apple**
19. Are the leaves tough, leathery and shiney?**20**
Are the leaves thin and subtle?**22**
20. Do the leaves have a tip?**21**
Do the leaves have notch at the tip, as if the tip has been inverted? ...**Box**
21. Are the leaves minutely hairy?**Wild Privet**
Are the leaves hairless?**Garden Privet**
22. Do the leaves have smooth, toothless edges?**23**
Do the leaves have toothed edges?**25**
23. Is the plant erect and free standing?**24**
Is the plant climbing up the stems of other plants?**Honeysuckle**
24. Are the leaves almost circular? Are some of the leaves deeply lobed? Are
the leaves dark green above and paler below?**Snowberry**
Are the leaves oval? Do the leaves have prominent veins? Are the
branches and stems red?**Dogwood**
25. Are the leaves wrinkled?.....**Wayfaring tree**
Are the leaves smooth? Do the leaves have prominent veins? Are there
thorns on the twigs?**Buckthorn**

J. The leaves are elongated, i.e. they are more than twice as long as they are broad

1. Do the leaves grow in an alternate arrangement along the twigs?2
 Do the leaves grow in opposite pairs along the twigs?20

2. Do the leaves have a hairy underside?3
 Do the leaves have a hairless underside, or only a few hairs?12

3. Do the leaves have toothed edges?4
 Do the leaves have smooth, toothless edges?10

4. Are the leaves green beneath?5
 Are the leaves white beneath?7

5. Are the leaves asymmetrical where they meet the leaf-stalk, with one side higher than the other?6
 Are the leaves symmetrical where they meet the leaf-stalk? Do the leaf-stalks have two red knobs just below the leaf?**Wild Cherry**

6. Are the leaves rough on the upper surface when stroked?**English Elm**
 Are the leaves smooth on the upper surface when stroked?
**Small-leaved Elm**

7. Are the leaves broad, not tapering into a fine tip?8
 Are the leaves long and narrow, tapering into a fine tip? Are the leaves silvery green above?**White Willow**

8. Are the leaves thin and subtle? Do the leaves have blunt teeth?**9**
 Are the leaves thick and tough? Do the leaves have irregular spiny teeth?
 **Holm Oak**
9. Are there two small leaflets growing at the base of the leaf-stalk? Are the
 leaves very wrinkled?**Eared willow**
 Are there no, or very small, leaflets growing at the base of the leaf-stalk?
 Do the leaves have rusty coloured hairs growing beneath?
**Grey Willow**
10. Are the leaves deciduous, thin and subtle?**11**
 Are the leaves evergreen, thick and tough? Are the stems grey-brown
 and covered in short pale brown hairs?**Holm Oak**
11. Are the leaves very long and narrow? Are the leaves covered in silvery
 white hairs beneath? Do the leaf edges roll inwards?**Osier**
 Are the leaves small and broader? Is the plant low shrub with creeping
 roots?**Creeping Willow**
12. Do the leaves have smooth, toothless edges?**13**
 Do the leaves have toothed edges?**15**
13. Are the leaves tough, leathery and shiny? Is the plant a shrub? Do most
 of the leaves grow at the top of the stem?**14**
 Are the leaves thin and subtle? Are the leaves long and thin? Are the
 stems silvery? Are many there thorns protruding from the stems?
**Sea Buckthorn**

14. Do the flowers grow in clusters at the base of the leaves?
.....**Spurge Laurel**
Do the flowers grow at the end of the stems?**Rhodededron**
15. Are the leaves long and narrow, tapering into a fine tip?.....**16**
Are the leaves broad, not tapering into a fine tip?**17**
16. Are the leaves asymmetrical, i.e. do the leaf tips point away to one side?
.....**Crack Willow**
Are the leaves symmetrical, i.e. are the tips in line with leaf-stalk?
.....**Almond Willow**
17. Are the leaves deciduous, i.e. are they thin, falling away in winter?**18**
Are the leaves evergreen, i.e. are they tough, leathery and shiney, lasting
all year round? Are the twigs green?**Cherry Laurel**
18. Do the leaves have double-toothed edges?**19**
Do the leaves have large, single teeth along the edges? ...**Sweet Chestnut**
19. Do the leaf-stalks have two red knobs just below the leaf blade? Are
there hairs only along the main vein beneath?**Wild Cherry**
Are there no knobs on the leaf-stalk?**Hornbeam**
20. Are the leaves evergreen, i.e. are they tough, leathery and shiney, lasting
all year round?.....**21**
Are the leaves deciduous, i.e. are they thin, falling away in winter?**22**
21. Are the leaves minutely hairy?**Wild Privet**
Are the leaves hairless?**Garden Privet**

22. Are the leaves hairless?23

Are the leaves softly hairy and white underneath? Are the leaves toothed?**Butterfly-bush**

23. Do the leaves have toothed edges? Are the twigs 4-sided?**Spindle**

Are the leaves slightly toothed at the tip? Are the leaves dull and slightly bluish above, and paler and greyish beneath?**Purple Willow**