

# Encyclopedia of Plants, Fungi, and Lichens for Young Readers

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# FLOWERING PLANTS

## Black bamboo

A remarkable grass, bamboo makes up much of a giant panda's diet. Some of its canes grow very quickly from the start. Meanwhile, we hear the bursting of germinating shoots. Yes, we really can hear grass grow!

## Roselle

This plant grows in tropical regions all over the world. Its Latin name, *hibiscus*, refers to the ibis, a sacred bird of the Ancient Egyptians. Its flowers and its red, pulpy calyxes are used to make teas, syrups, jellies, and jams.

## Sensitive plant

When touched, this sensitive plant folds in its leaflets until the whole leaf is hidden. When the touch is severe—in heavy rain or high winds, for instance—the whole plant withdraws and takes on a dried-up appearance.

We're a varied group.

We're big and small.

We grow attractive flowers.

Our stems are woody and juicy.

Roselle

Black bamboo

Sensitive plant

Dragon blood tree

True lavender

Tulip

This is a highly varied group of plants. Surprisingly, we find in it a tiny flowering plant called the wolffia, as well as giant trees. Woody plants, which are comprised of trees and shrubs, have a wooden stem. Herbs are plants with a pulpy (soft) stem. Plants produce flowers to ensure their survival. Colorful, fragrant flowers in particular attract insects, which pollinate them, thereby allowing them to produce seeds. And it is mostly seeds—of all shapes, colors, and sizes—that serve to reproduce.

## True lavender

Because of its fragrance and soothing qualities, lavender has been added to baths since ancient times. It is included in cosmetic products. And as it repels insects, people sometimes put it in their wardrobes to repel clothes moths.

## Dragon blood tree

When injured, the trunk or a branch of this tree releases a reddish-brown resin known as dragon blood. In the past, it was much used in folk medicine, as a dye or in the production of varnish.

## Tulip

Tulips are the world's most famous bulbous plants. More than anywhere else, they are grown in the Netherlands. Tulips come in a huge range of colors—perhaps only blue and black are not represented.



# Conifers

Coniferous trees are very old plants. Their acerose (needle-shaped) leaves are covered with a hard, thick skin that prevents the excessive evaporation of water. With a few exceptions, conifers are evergreen, meaning that the tree keeps its leaves (needles) all year round. In most cases, the fruit is a cone, although some conifers instead have colored berries.

## Scots pine

Pine trees need lots of light. One of the uses of their resin is in the production of rosin, which is applied to the bridges of musical instruments, so that they hold closer to the strings during playing.

## European larch

Thinner branches hang from the powerful main branches of the European larch, with needles arranged in bunches growing on them. The cones stay on the tree for several years.

## Norway spruce

The Norway spruce has short, prickly needles. Unlike fir cones, spruce cones hang from the branch. Spruce is used to produce furniture, musical instruments, and paper.



## Monkey puzzle tree

This tree is one of the oldest woody plants on the planet. Its prickly, scale-like, dark-green leaves are arranged around the branches in spirals, and the trunk is dotted with them too.

## Silver fir

This conifer is sensitive to air pollution. The cones on its branches grow upward. After ripening, they decompose on the tree. Resistant to water, the wood of the fir tree is often used in hydraulic engineering.

## Mediterranean cypress

As the cypress can retain a lot of water, it has excellent fire-resistant properties. Cypress wood is hard and durable. In Ancient Egypt, it was used for the sarcophagi of Pharaohs.

## California redwood

The redwood is a giant of the plant kingdom. In fact, it is the world's tallest tree! It can grow to be up to 380 feet tall and live to a great age. Standing next to a redwood, you will feel like an ant.

## Japanese umbrella pine

The umbrella pine grows in mountainous regions of Japan. Its long needles grow at the end of shoots and are arranged in an umbrella shape.

## Common yew

With the exception of the fleshy red arils, out of which the seed peeks, the entire plant is extremely poisonous. In the past, crossbows and longbows were made from the wood of the yew.



# Deciduous trees

Deciduous trees have many different kinds of broad, flat leaves. In tropical, subtropical, and dry regions, they lose their leaves in the dry season. In temperate climates, deciduous trees lose their leaves in autumn. In the process, the color of their leaves often changes from green to yellow, orange, brown, or red.

## Grandidier's baobab

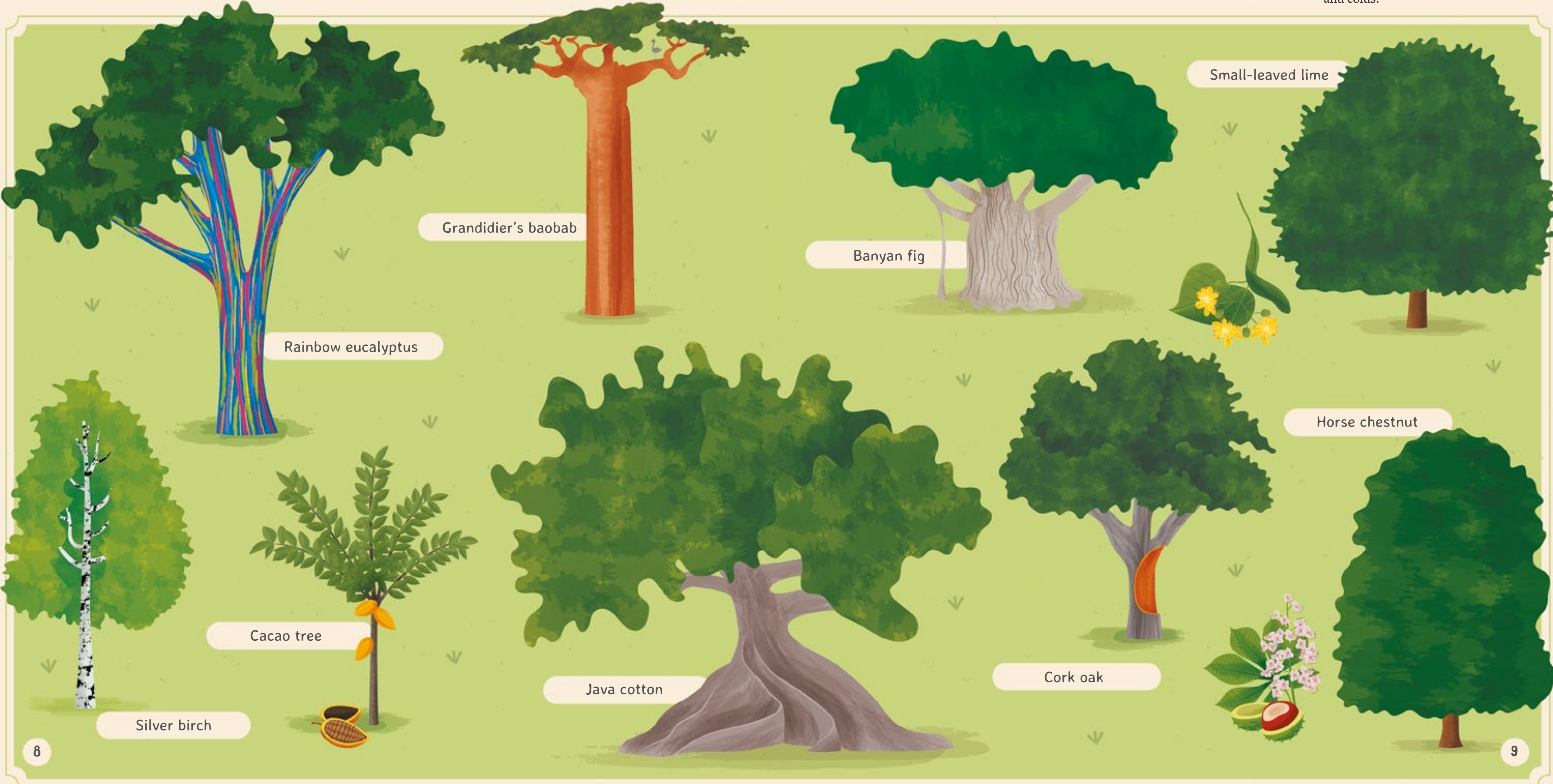
The baobab is the greatest beast of the tree world. This is because its trunk can hold a great deal of water. In the dry season, having shed its leaves, it looks as though it is standing on its head, with its roots in the air.

## Banyan fig

This tree has a strange way of growing. It forms aerial roots, which grow downward from its branches. Over time they come to look like secondary trunks supporting the ever-growing crown.

## Small-leaved lime

The wood of the lime is often used by woodcarvers and sculptors. A lime tree that is in flower is a pasture for bees, which, back in their hives, turn the nectar they gather into linden honey. Linden flower tea is good for coughs and colds.



Grandidier's baobab

Banyan fig

Small-leaved lime

Horse chestnut

Rainbow eucalyptus

Cacao tree

Java cotton

Cork oak

Silver birch

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## Rainbow eucalyptus

The colorful trunk of the rainbow eucalyptus is painted by nature, not humans. Peeling strips of bark from the tree reveals phloem—which are like its veins and arteries—of various colors.

## Silver birch

The trunk of the young silver birch is covered with white bark, which peels off in thin layers. There are black marks on the trunk of an old tree. Holes are drilled into the trunk to collect birch water, which is used in cosmetics.

## Cacao tree

First the flowers then the fruit of this small tree grow directly on its trunk. The fruit contain seeds—cocoa beans, which are used to make cocoa powder and chocolate.

## Java cotton

Its strong, tubular roots grow from the trunk in ripples. Fiber taken from its ripe seed pods, known as kapok, is used as stuffing for mattresses and pillows, as a filling for life jackets, and as an insulating material.

## Cork oak

The thick bark of the cork oak protects it from water loss and overheating. It is a source of natural cork. Stripped of bark, the tree does not die. Indeed, over time the layer of cork will grow back.

## Horse chestnut

Inside the prickly green fruit of the horse chestnut tree is a brown seed, known as a conker. In the past, conkers were grated and used instead of soap.



# Shrubs

Like trees, shrubs (bushes) are woody plants. Unlike trees, however, they don't have a central trunk. They branch out at ground level or just above. Most shrubs are shorter than trees but taller than grasses and herbs.

## Black elder

The elder has many different uses. As a medicinal plant, its dried leaves are used to make tea. Its berries are used to make syrup rich in vitamin C and wine, while its wood is used to produce musical pipes, whistles, and fujaras.

## Dog rose

The stems of the dog rose have small hooked prickles, which serve as protection against herbivores. Its pink or white flowers have a pleasant scent. The hip, its fruit, contains vitamins and is used to make tea.

## Common snowberry

In autumn, the common snowberry is laden with white berries. If you drop these berries on the ground and stamp on them, they make a popping sound. In winter, the berries are a delicacy sought after by birds.



Tea plant



Black elder



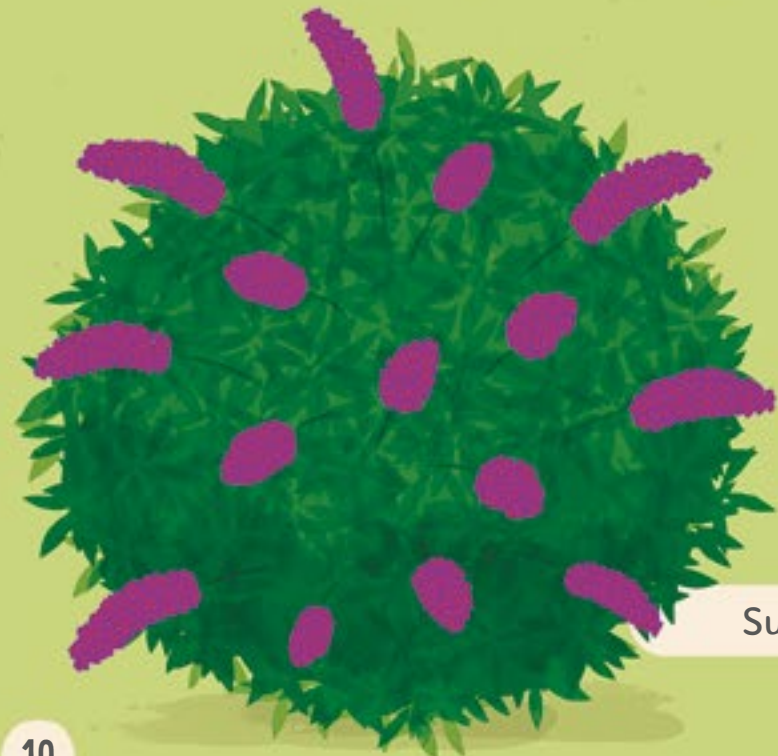
Dog rose



Common snowberry



Sea buckthorn



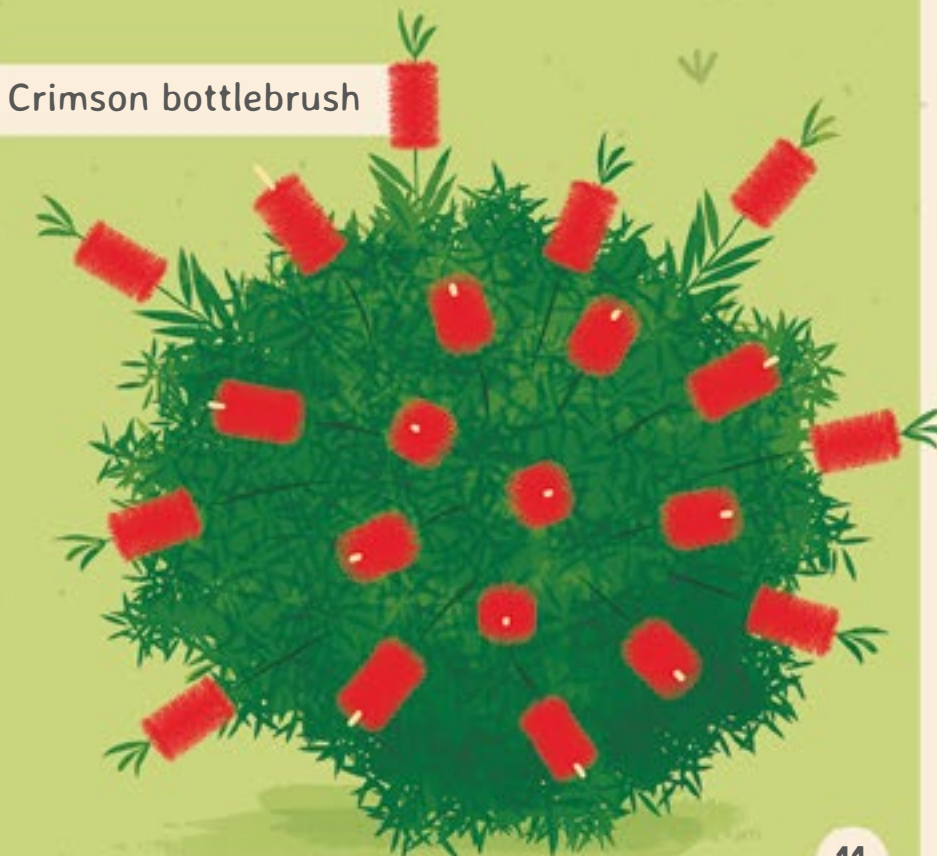
Summer lilac



Upland cotton



American witch-hazel



Crimson bottlebrush

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## Tea plant

The top leaves of the tea plant are used to make tea, a drink well known all over the world. The type of tea (most notably black, green, and white tea) depends on the way the leaves are processed after harvesting.

## Summer lilac

This plant comes from China. The sweet, heady smell of its purple blooms attracts bumblebees and a great many butterflies.

## Sea buckthorn

In autumn, this spiny shrub is laden with orange berries. Filled with vitamins, these berries are used—in compotes, jams, syrups, and many other delicious things—to help the human body resist disease.

## Upland cotton

After it flowers, the upland cotton produces a fruit that contains a seed covered in fuzz. On ripening, the fruit bursts, revealing a tuft of cotton inside. These tufts are gathered and processed into cotton fiber for textiles.

## American witch-hazel

Witch-hazel produces flowers in autumn and winter. When ripe, its fruit shoots its seeds over distances of up to 30 feet. In the past, dowsers used sprigs of witch-hazel in their search for groundwater and mineral riches.

## Crimson bottlebrush

The striking red flowers do look like brushes for cleaning bottles. When rubbed, young leaves smell lemony. The fruit of the crimson bottlebrush is a capsule that remains closed until the plant dies or there is a fire.



# Palms

*Palms, too, are woody plants. They are widespread in tropical and subtropical regions all over the world. Most palms have a simple slender trunk without branches, topped with a tuft of leaves. The trunk bears scars where leaves have fallen. Many palms have important uses—not only are they a source of food, but they also serve as building materials, and they are highly decorative too.*

## Oil palm

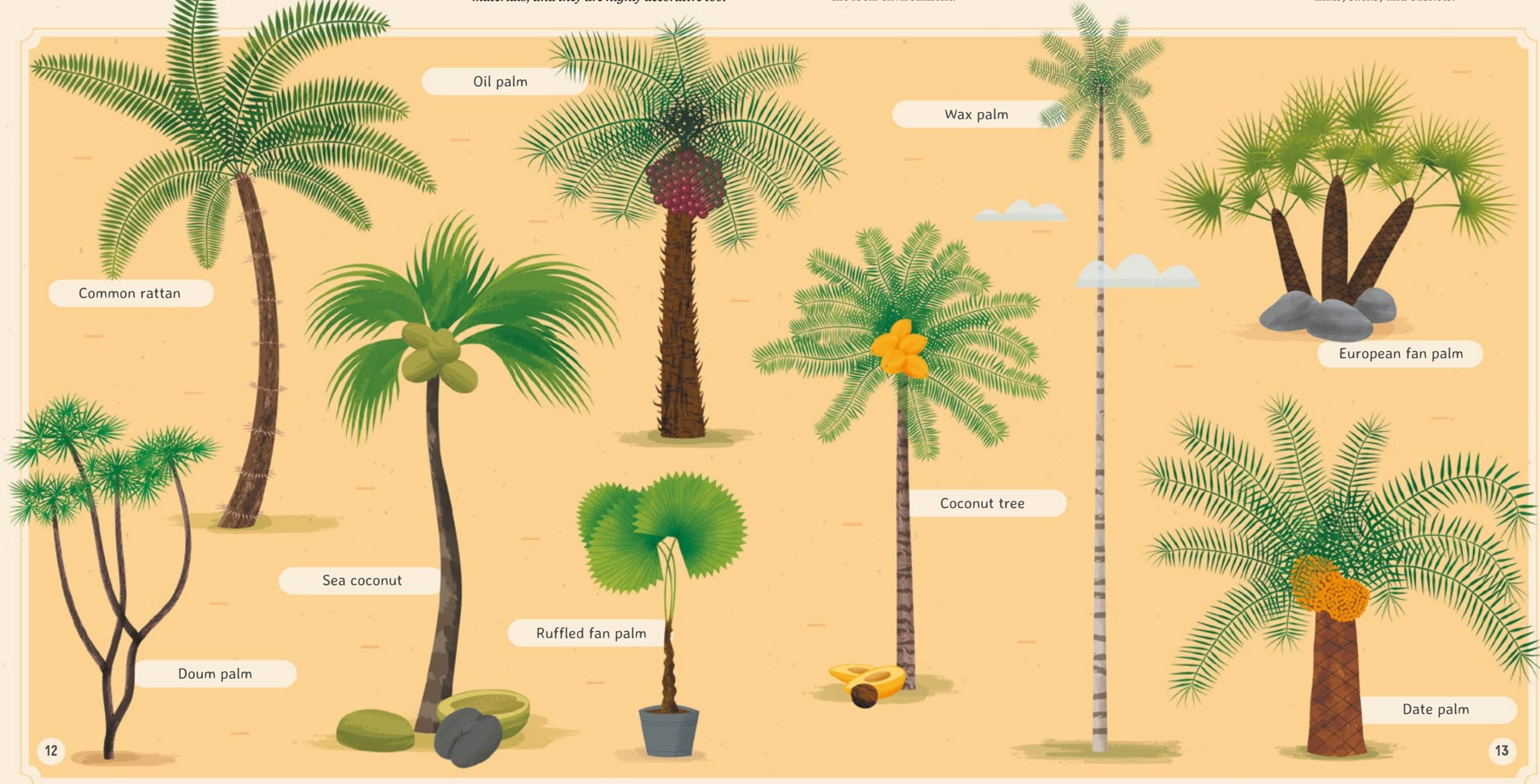
The fruit of the oil palm is a rich source of vegetable oil. But the felling of primeval forests to make way for the plantations on which it is grown has a negative effect on the local environment.

## Wax palm

The world's tallest palm grows mainly in the misty mountain forests of Colombia. Its strikingly slender trunk has distinctive leaf scars around it and is covered in a layer of wax.

## European fan palm

This fan palm is the only indigenous palm species in Europe. In most cases, it forms several stems, giving it a shrub-like character. Its leaves produce a fiber that is used to make mats, sacks, and baskets.



## Common rattan

The rattan has the longest known stem of all plants. This palm and several similar species are used to produce rattan furniture. Most rattan palms are climbing plants with a prickly stem.

## Doum palm

The doum palm is found throughout Africa. Unlike most other palms, its trunk branches dichotomously—meaning it divides into two parts. Its fruit has been discovered in the tombs of Egyptian Pharaohs.

## Sea coconut

This palm has the largest seed in the plant kingdom, weighing over 40 pounds! Unlike the coconut, it does not float, which explains why the species has never spread beyond its original home, the Seychelles Islands.

## Ruffled fan palm

The fan palm boasts beautiful fronds. Growing up to ten feet tall, it occurs naturally in the undergrowth of rainforests, in places where the temperature and humidity are high all year round.

## Coconut tree

In shops, we find only the seed of the coconut, stripped of the fibrous pericarp that allows it to float on water. Thanks to this ability, it has traveled great distances, taking root on different islands and continents.

## Date palm

This palm is often found in oases. The date, its fruit is more than just popular: it is a staple food in North Africa and the Middle East. Dates are eaten dried as well as fresh. Palm cabbage is prepared from the palm's young leaves.



# Succulents & cacti

*Their bodies (stem and leaves) can hold large amounts of water—meaning that they can survive long periods of drought. Cacti are among the best-known succulents. They come from the continents of North and South America, although we find them elsewhere too. Most cacti have spines, not leaves.*

## Stapelia gigantea

The flower of the stapelia stinks like rotten meat, thereby attracting flies, its main pollinators. A fly often lays its eggs in the middle of the flower, in the mistaken belief that in this place the larvae will find food aplenty.

## Aloe vera

Aloe grows in rosettes of fleshy, spike-toothed leaves. Its tubular flowers are mostly pollinated by birds feeding on its nectar. It is used as a medicinal plant.

## Agave americana

Its gray-blue leaves can be six feet long. It blooms just once, dying after flowering. The stalk bearing its yellow flowers may grow to be 25 feet tall.

Stapelia gigantea

Aloe vera

Agave americana

Lithops

Brighamia insignis

Saguaro

Hylocereus undatus

Cephalocereus senilis

Prickly pear

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## Lithops

Also known as living stones, lithops take on the shape and color of the real stones around them, so that you can hardly tell them apart. Their small, fleshy bodies are divided in the middle by a narrow opening.

## Brighamia insignis

This plant originated on the islands of Hawaii. In all likelihood, it is now extinct in the wild. The species is kept alive, though, in botanical gardens.

## Saguaro

The largest species of cactus, the saguaro, can grow to be 50 feet tall! What's more, it can live for 250 years. Some birds peck hollows in the saguaro to nest in it.

## Hylocereus undatus

Its large aromatic flowers bloom for one night only. Following pollination, the red fruit that emerges resembles a lizard or a dragon. This explains why the edible fruit (called pitahaya) is also known as dragon fruit.

## Cephalocereus senilis

This tall, slim cactus is at home in Mexico. It is covered with thick white hair, giving it a shaggy appearance and protecting it from the sun's rays.

## Prickly pear

This cactus's many flat, prickly surfaces inspire caution, but it has an edible fruit. Cochineal insects feed on the prickly pear by sucking juice from it, thereby turning it red.



# Parasitic & carnivorous plants

Commonly, carnivorous plants grow in soil that is low in nutrients. As they often lack nitrogen, they supplement their diet with meat, especially insects, which they hunt. Parasitic plants, on the other hand, are dependent on other plants, which give them the substances they need to develop and grow.

## Round-leafed sundew

The leaves of the sundew are covered with small hair-like stalks. The ends of the stalks secrete a sticky slime, which shines in the light like dewdrops. Insects that attach themselves have no chance of escape.

## Knapweed broomrape

The thick stem of this pinkish-red and yellow plant ends in a dense bunch of flowers. It is a parasite that lives on chicory roots.

## Corpse lily

The corpse lily has the largest flower on Earth. It has a very unpleasant odor and grows in the tropical rainforests of Southeast Asia, where it is parasitic and lives on lianas.



- **Mistletoe**

Mistletoe grows on coniferous and deciduous trees. It roots itself in tree bark in order to draw out the water and substances it needs.
- **Common toothwort**

This parasitic plant lives mainly on the roots of deciduous trees. Its pink or pinkish-purple leaves cover the entire stem, from its top to the ground, and even below the ground.
- **Purple trumpet-leaf**

Like the pitcher plant, the trumpet-leaf catches its prey in its pitcher. The traps of some species are up to three feet high. In summer, they are often filled to the brim with insects.
- **Fanged pitcher plant**

Pitcher plants have liquid traps at the ends of their leaves that look like pitchers. Along their edges is secreted a sweet nectar that attracts insects to their slippery walls. Having slipped down the wall, the prey is drowned.
- **Venus flytrap**

The leaves of the flytrap have a special trapping structure. When, for instance, a fly lands on a leaf, this leaf snaps shut; the pointed protrusions on the leaf's edge prevent the prey from escaping.
- **Common butterwort**

The leaves of the butterwort are covered with a slimy, sticky substance that sparkles in the light, thereby attracting insects. Once the insect is stuck to a leaf, the plant feeds on it by slowly breaking it down.



# Creeping plants

*They make their way upward by different techniques. Some have outgrowths in the form of roots and suckers, which can attach themselves to tree bark or the wall of a house. Others form bines, which wrap themselves around a support of some kind. Still others twist like snakes, winding themselves around their supports from all sides.*

## Common hop

The hardy rhizome of the common hop is covered in downward-facing hairs that help the plant to climb. An important component in the making of beer, hop cones have a special smell and taste.

## Magnolia vine

The magnolia vine, which has striking red berries, comes from Asia. Because of its unmistakable piquancy, in China the magnolia vine is called the plant of five tastes (sour, bitter, sweet, salty, and spicy).

## Woodbine

The bines of the woodbine operate as suckers. On contact, they release a glue-like substance that enables the plant to move, even along a very smooth surface. In autumn, its leaves turn red.

Jade vine

Common hop

Magnolia vine

Woodbine

Common ivy

Tuberous pea

Field bindweed

Giant pelican flower

Passion fruit

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## Common ivy

Ivy is an evergreen plant that can live for several hundred years. It creeps along the ground and climbs up trees or house walls, dressing them in a smart coat.

## Tuberous pea

The tuberous pea either just lies around or climbs toward the sun, using other plants for support. Its root tubers may be eaten raw or cooked and have a nutty flavor.

## Jade vine

This plant grows in the rainforests of the Philippines. It is unusual in the plant world in that it blooms in huge hanging compound flowers, which are turquoise in color. In the wild, it is pollinated by bats.

## Field bindweed

Bindweed twists its stems around everything within reach. A weed, it is the torment of every gardener, as it is very difficult to get rid of.

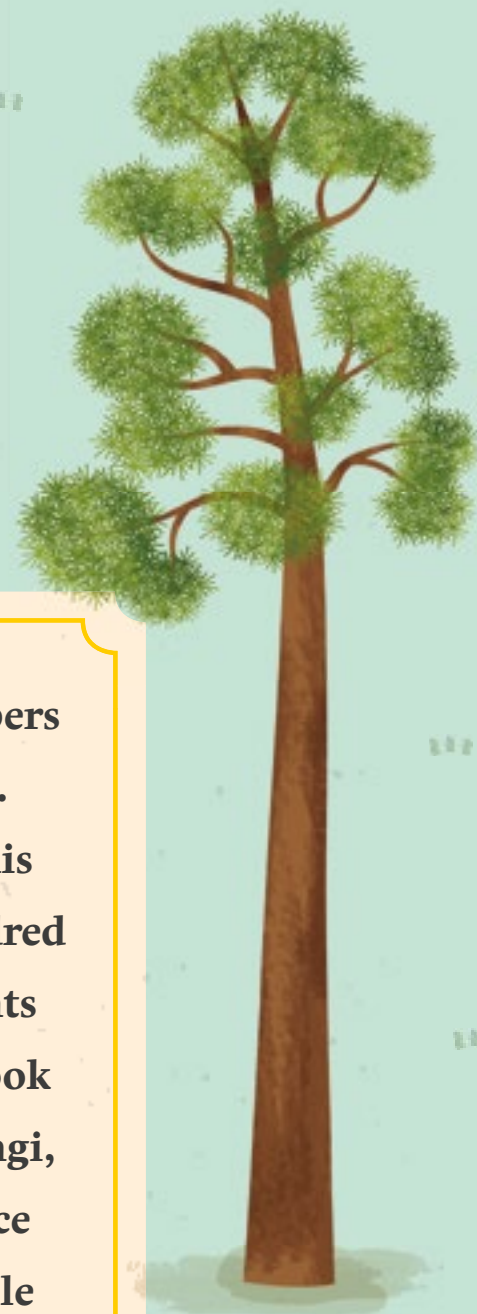
## Passion fruit

The passion fruit originated in the tropics and subtropics of the continent of South America. It uses its long, spiral-shaped tendrils to attach itself to trees and other supports. Its fruit (the maracuya) is edible.

## Giant pelican flower

The giant pelican flower is at home in South America. The flowers of this liana resemble a piece of raw meat. Their putrid smell attracts insects, which pollinate the plant.





**This planet of ours is teeming with vast numbers of plants, from small flowers to giant trees. And there are fungi and lichens too. With this encyclopedia, you will get to know a few hundred of the best known and most interesting plants from all over the world. What's more, this book will show you the groups in which plants, fungi, and lichens can be classified. It will introduce you to mysterious lichens, edible and inedible mushrooms (as well as poisonous ones), and flowering and non-flowering plants. You will also learn about trees, bushes, and herbs from all corners of the globe. With its magnificent full-color illustrations and simple explanations, this book is not only useful; it is an essential learning companion for young readers.**

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