unique mix of
ENCYCLOPEDIA
& fairy tale

Observing the Plants of the Forest with Hansel & Gretel

Albatros

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albatros

One day, Hansel and Gretel set out with their daddy for a long-promised journey among the forest's giant trees in order to replenish their wood supplies. As soon as the first cut of his axe resounded and he became engrossed in the work, wheee! Instead of helping, like they promised, the children started fluttering around the forest, ignoring their dad's warning to stay nearby. They zigzagged merrily between the trees—prickly conifers one moment, rustling broad-leaved trees the next. The two played tag in patulous shrubbery, not realizing that the sound of their father's axe grew farther and farther away.

LOST IN THE WOODS

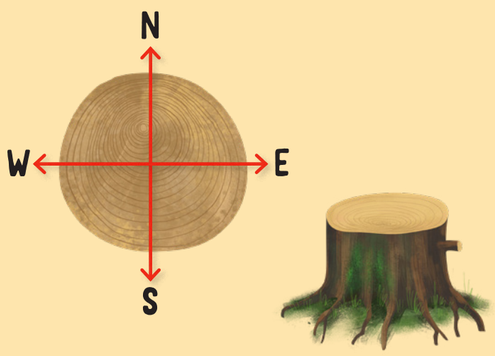
Hansel and Gretel lost their way. Let's help them find it and learn a bit about getting your bearings in the wild! Sometimes, people get lost while enjoying a walk in the forest. What should you do when you don't have a map, compass, or GPS on you? Just look at the wilderness around you. There are certain natural things that are related to the four cardinal points.

Four cardinal points

To **find your bearings** in nature and wild terrains, it's good to know **where the four cardinal points are**—north, south, east, and west. As soon as you figure out where the north is, you'll easily find the rest. Lucky for you, the **north** is the easiest one to find.

What north does to plants

You may notice that lone trees have **asymmetrical tops**. That's because **harsh winds** tend to blow from the northern, which is why the branches on the northern side are usually **shorter** and **broken**.

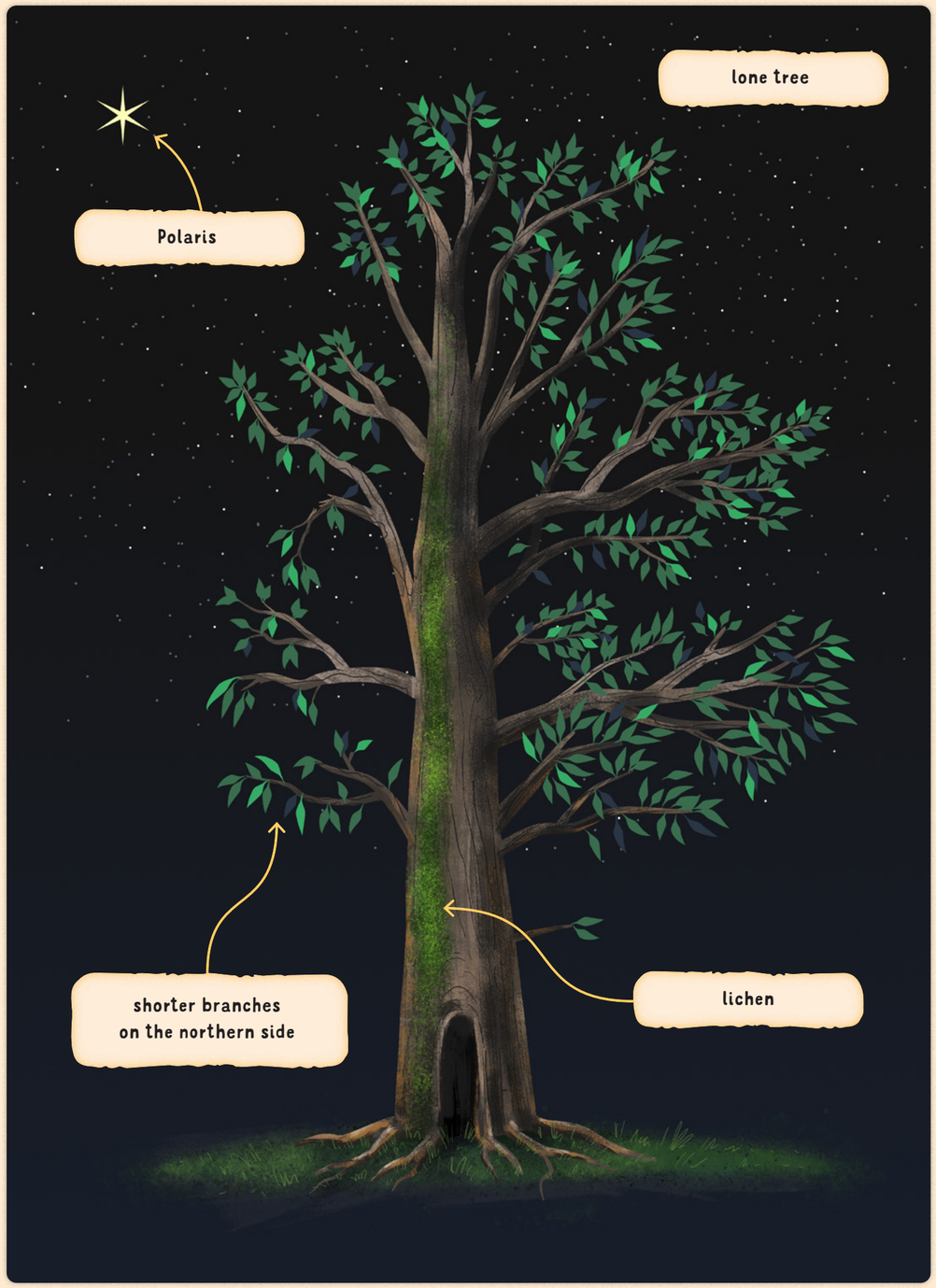


Growth rings

If you see a tree stump in the forest, notice that there are many rings on it. They're called **growth rings** and tend to be **crammed closer together on the northern side** since that's where the tree is most **resistant** against cold. If you count them, you'll know **how old the tree is**.

Starry sky

At night, you can look at **the positions of the stars** to find your way, both in the northern and southern hemisphere. In the north, the location of the **North Pole** is determined by **Polaris**, the brightest star of the Ursa Minor constellation. In the south, you can find the **South Pole** by looking where **the Crux constellation is**.

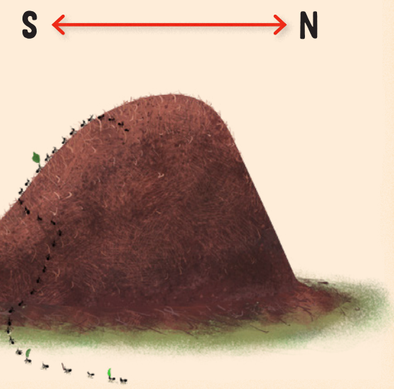


Constellations always help

If you get lost at night, you can find the north by looking for **Polaris**. It's the only star that always stays put, **illuminating the North Pole**. Simply find the Ursa Major constellation and go up its rear wheels five times.

Pay attention to ant hills

Ants often build their hills at the **edge of a forest** to make sure they have a lot of light. When built on the sunny, warmer **southern side**, its slope tends to be **gentler** so that it can absorb as much warmth as possible. And vice versa, it's **steeper** on **the northern side**.



The snow will tell

In **winter**, you can find your way by looking at where snow stays the longest. **Northern slopes** tend to be **colder** and damper—therefore, snow **survives longer** there than on the sunny southern side.

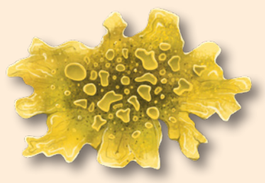
Lichens

Rumour has it that one of the ways to find the **north** is to find **lichen-covered** trees since lichens tend to prefer the northern side of the trunk. **This isn't foolproof**, though, which is why it's a good idea to confirm your findings.

Lichens are tiny organisms that can be found pretty much **all over the world**. They can withstand **great colds and heats** or conquer as yet unpopulated regions. Some kinds serve an important function, as **indicators of air pollution**.

Map lichen

The map lichen grows in mountain regions, on **rocks and stones**, covering large areas. Being distinctly **green in color**, it's visible **from afar**. Since it has black edges, it sort of resembles **a map**.



Sunburst lichen

The sunburst lichen is a very photogenic **yellow lichen** that can be found all over the world. It grows on **the bark of leafy woody plants** (often on black elder), on rocks, or coastal reefs. It sticks firmly to the base and is hard to remove.

Beard moss

Beard moss has **a characteristic shape**, which makes it look like **strings**. It's either green or red and grows mostly on trees. **Sensitive to pollution**, it's used in folk medicine as it contains **vitamin C** and heals surface wounds.

Shrub lichen

This yellow-green twiggy lichen owes its color to **a toxic chemical substance** it contains. Native Americans used it as **a venom** and added it to baits for wolves or poisoned the tips of their arrows with it. It grows on the bark of trees in **dry coniferous** forests.

Reindeer lichen

The reindeer lichen is frost-proof and is a **crucial food for reindeer**. Grey-green in color, it looks like **a small bush**. It **grows very slowly** and is 4 inches tall at most. Although it's resilient in cold temperatures, it can also be found in warm regions.

Scarlet cladonia

This rare lichen forms cups that are less than an inch tall and have **a characteristic red top**. It grows mostly on rocks, in moorlands, or sand dunes. The cups are **hollow** and their pale green surface **rough**.

Hansel called out as soon as he took a look. "I think I know now which way to go!" climbing back down like a squirrel. He took Gretel's hand and together they bravely set off, thinking about their mom and dad, who were surely looking for them. All of a sudden, the dark forest thinned out. Sunlight tickled their cheeks and led them to a quaint clearing with a bubbling stream. Beautiful flowers of many different shapes and colors grew there. And who would have thought! A peculiar, sweet-smelling house was right in the middle of it all!

FIELD

Field economy

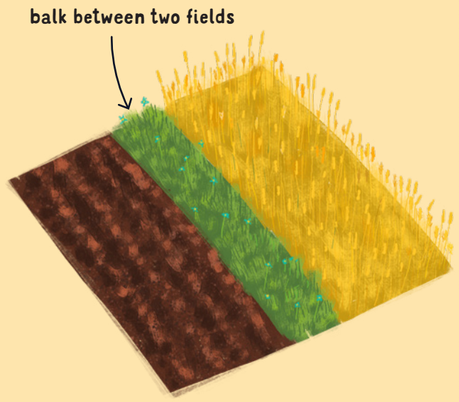
A field is a piece of **farmland** used by people for growing a single type of plant—**crop**. Fields can vary in size, ranging from **tiny** to **vast**, which come to be when smaller fields are joined together. Such pieces of land are then called **large fields**.

Field crops

The many different crops that can be grown in fields can be divided according to their **use**. Some are grown for their **grains**, the seeds of others are **turned into oils**, some become textile fibers, while others are grown for their **edible tubers**.

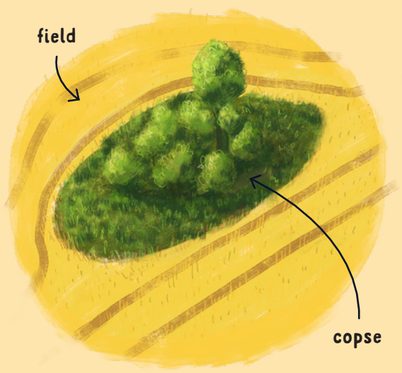
The importance of fields

The chief function of fields is to grow and harvest **crops**, so fields which play an important role in people's lives. Similarly to meadows, they are **relevant to the wilderness** and its inhabitants—dense maize fields, for example, provide **shelter** to wild boars.



Balk

Essentially, balks are **the grassy boundaries** that separate individual fields. They also hold soil together and **protect it from falling apart**. Last but not least, they provide **a hiding place** to many **small animals**.



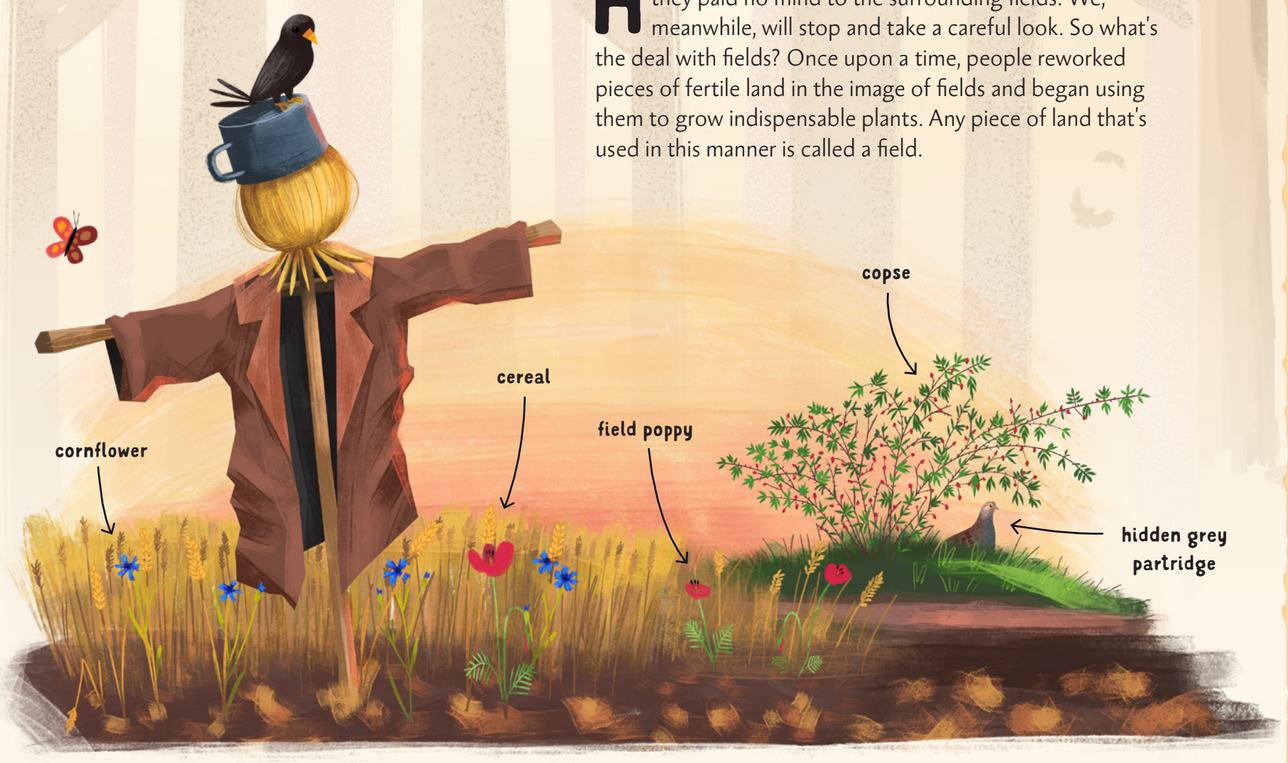
Copse

That's what small **islands of trees and shrubbery**, strewn in the fields, are called. They have a very **significant function** in the landscape—they help **retain water** and provide **a natural shelter** and food to many animal species.

Crop rotation

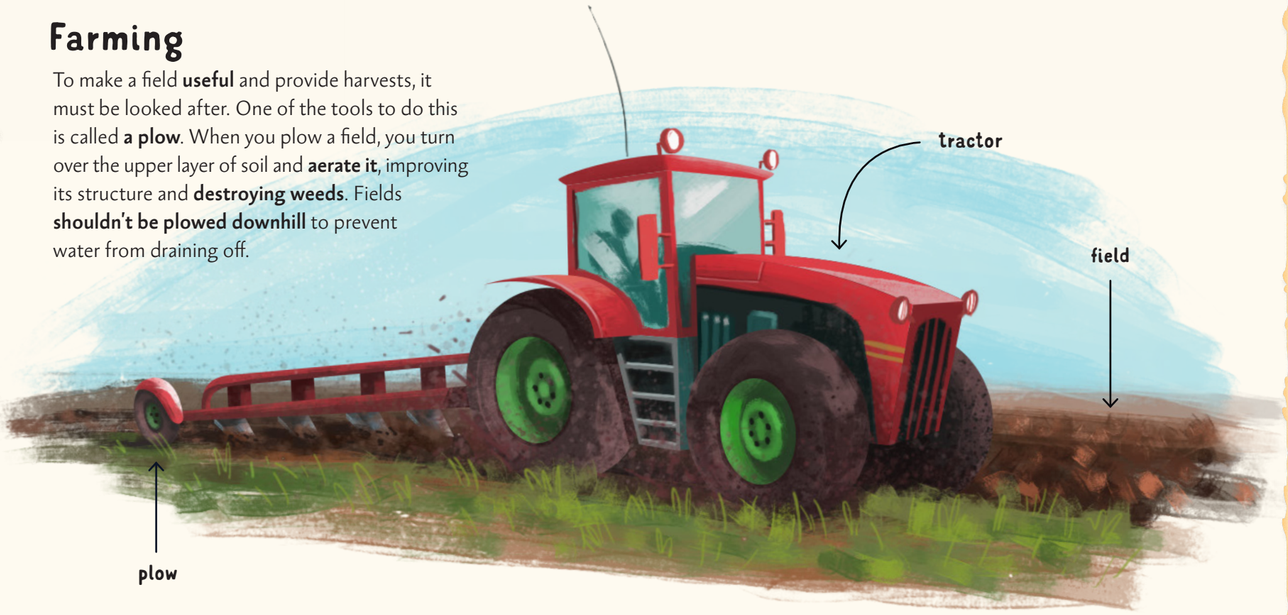
This means that different **crops are grown in turn**, in a single field. Some of them **remove nutrients** from the soil, while others **put them back**. This makes sure that the land will **stay fertile**, harvests plentiful, and the ground will **remain stable**.

Hansel and Gretel ran so fast back to their parents that they paid no mind to the surrounding fields. We, meanwhile, will stop and take a careful look. So what's the deal with fields? Once upon a time, people reworked pieces of fertile land in the image of fields and began using them to grow indispensable plants. Any piece of land that's used in this manner is called a field.



Farming

To make a field **useful** and provide harvests, it must be looked after. One of the tools to do this is called **a plow**. When you plow a field, you turn over the upper layer of soil and **aerate it**, improving its structure and **destroying weeds**. Fields **shouldn't be plowed downhill** to prevent water from draining off.



Weeds

Fields frequently include weedy plants we aren't interested in having around. They **deprive crops of water and nutrients** and can even destroy the entire harvest if **toxic**. But some weeds can be **useful**—for example, they can provide **food for bees** during the flowering period.

Field larkspur

This field weed is harmless to other crops, but its toxic seeds can pose a problem if present in flour.

Field poppy

The edges of cereal fields are often red. Why? Because of wild field poppy plants.

Corn cockle

A plant that can be found pretty much exclusively in fields plowed by humans.

Cornflower

A typical field weed that's used for medicinal purposes, such as treating eye inflammations.

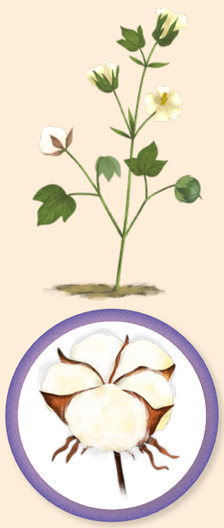
Field crops

Rice

One of the oldest known cereal grains, it's grown in tropical regions in flooded fields.

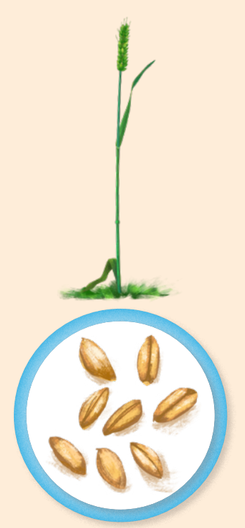
Maize

The maize forms ears with sweet yellow corn kernels, which can be turned into flour or popcorn.



Cotton plant

A bush whose ripe capsules are full of white fluffy fibres that can be turned into cotton.



Common wheat

One of the most widespread crops in the world. Since time immemorial, the flour made from common wheat has been used for making baked goods.

Potato

When cooked, the tubers can be eaten as a side dish. Otherwise, the whole plant is toxic.

Sunflower

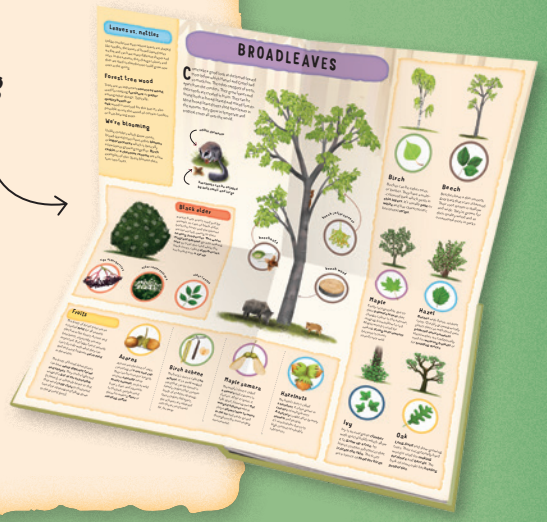
A yellow flower that can grow up to 10 feet tall, it turns towards the sun when young. Its oily seeds are enjoyed by both birds and people.

Observing the Plants of the Forest with Hansel & Gretel

Text by Sabina Konečná & Lenka Adamová
Illustrations by Jakub Cenkl & Tomáš Kopecký

Not far from a deep forest, there lived mom, dad, and their two children—Hansel and Gretel. And because Hansel and Gretel had always been little fidgets, it was no wonder that one day, they got lost deep in the woods, and while trying to find their way home, they came upon a witch's house made of breads, cakes, and sugar! What plants did they see during their wandering in and out of the forest? You can learn very interesting information about forests, fields, and meadows in this richly illustrated book, *Observing the Plants of the Forest with Hansel & Gretel*, which is a unique combination of fairy tale and encyclopedia.

big folding maps



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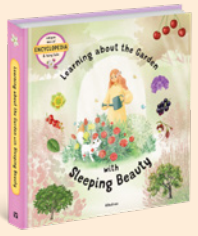

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Choking hazard.
Not suitable for children under 36 months.

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