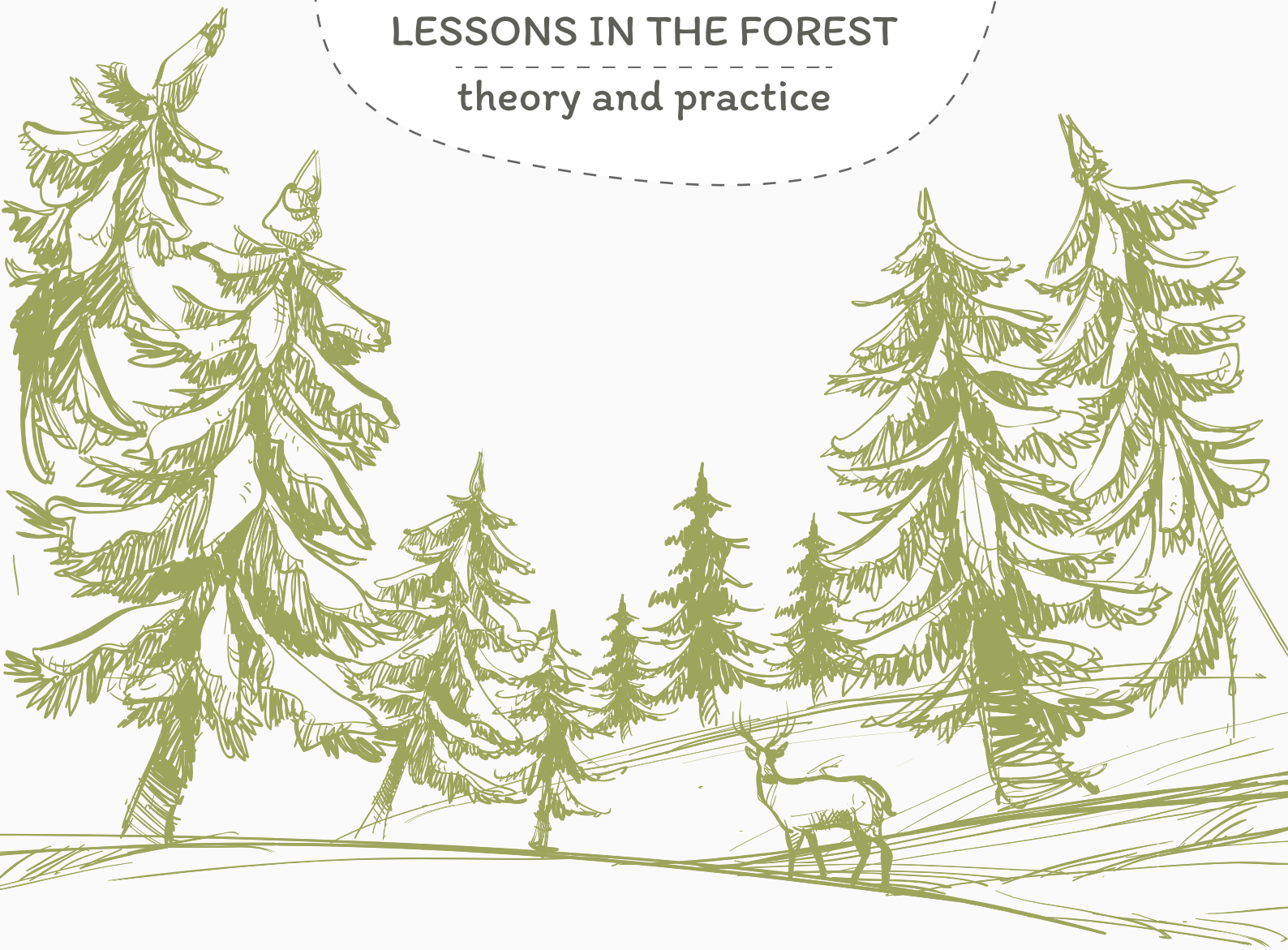
Nature friendly children!

LESSONS IN THE FOREST

theory and practice



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W ZWIĄZKU Z NATURĄ

las • natura • permakultura

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NATURALLY

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LOVE!

We invite you to the forest, to play in nature. It is there that you will find just what you need: peace, rest, tranquillity, solace for the senses and, on the other hand, fun, stimulation or the power of creation.

LET YOURSELF BE ADVENTUROUS IN NATURE!

How do you use our inspirational guide?

The inspirational book consists of 15 modules. Each of them is linked to an activity scenario for children in primary school grades 1-8 from the textbook Child Friendly Nature. Each module consists of:

A DOSE OF KNOWLEDGE

lots of interesting facts about the forestand the nature that surrounds you; this module is a knowledge extension of the workshop scenarios and a background to the task.

+

FORESTRY TASK

In this section, a forest task awaits you. Since nature does so much for us, it's time we did something for it too. The tasks can be done by children aged 7 and over with a guardian.

INSPIRACJA 1

HOW IS THE FOREST STRUCTURED?

Do you remember when have you been in the forest recently? What makes it different from the park from the garden or from the clearing?

A dose of knowledge:

OUR DEFINITION OF THE FOREST

The book definition of a forest is that it is an area of min. 1 000m2 covered with forest vegetation. However, this definition does not say much about a forest. Let us think for ourselves.

Surely everyone will reply that there must be trees in a forest. Yes, this is definitely the most important thing to distinguish a forest from a clearing or field. But parks and gardens also have trees. Why don't we call them a forest? Because in the park and garden, the plantings are planned, planted according to someone else's idea. There are many ornamental plants, sometimes even exotic ones.

Parks and gardens are primarily intended to have an aesthetic function, and we often plant plants that bloom in different months to make it pretty and colorative. We mark out paths and flowerbeds. We separate them from the lawn, which we mow. We regularly carry out work in the park and garden to maintain this effect.

The forest, on the other hand, is more or less natural.

The forest is home to trees and shrubs (and other plants) that occur naturally in our climate.

The plant density is much higher. Apart from the work of foresters, nobody intervenes in the life of the forest, everything happens there on its own. Of course, many forests are planted by man, because people use wood and cut down trees and then plant new ones. They mainly plant pine trees, because they grow fast and can be harvested again in a relatively short time.

Despite the fact that foresters intervene in the life of the forest, many processes still occur there naturally. Trees still produce seeds and spread them with the help of birds, other animals, the wind, or the special wings or parachutes with which the seeds are equipped.

Every year, the trees shed their leaves, which are then decomposed by insects and micro-organisms, resulting in humus. The forest is home to animals that form food chains. There is an abundance of life in the forest that plays out quietly when we are not looking.

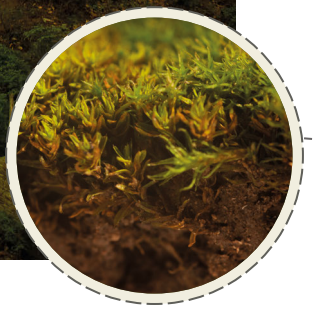
The forest has a storied structure

And it is also this structure that distinguishes a forest from other communities. You probably already learned about this at school, that these forest floors are:

CROWNS OF TREES
highest floor - as we look up and see leaves and needles high up

UNDERGROWTH AND SUB-GROWTH
this layer more within sight of humans, mainly shrubs and small trees up to about 4 m in height

FOREST RUNO
mosses, lichens,
low plants (e.g. berries), mushrooms



SOIL AND MULCH
what is underfoot and not connected to the ground: leaves, needles, remains of dead organisms

The aforementioned layers intermingle and the lives of their inhabitants are constantly intertwined. Leaves from the treetops fall onto the mulch, soon to turn into undergrowth. Mushrooms growing in the undergrowth provide food for snails, which are later eaten by birds. Omnivorous foxes living in the undergrowth eat the fruit, the seeds of which will be excreted with the droppings and from which new trees will grow. And so on. A continuous cycle of life - metabolism.

WALL

is the forest floor on which leaves, needles, pieces of bark, insect carapace, dead small and larger animals fall. It can be called the transitional phase between the living world and inanimate matter. It is here that the smallest inhabitants of the forest live: tiny insects (centipedes, millipedes), single-celled fungi (in the form of filaments), bacteria, protists, etc. It is here that the smallest inhabitants of the forest live. - They are the ones that turn what was once living into simple mineral compounds, which then provide the building blocks for the trees.

RUNO

is that layer of the forest where we walk, from which small plants (berries, ferns) and other organisms such as fungi, mosses and lichens grow. Small mammals - shrews, voles, hedgehogs and amphibians and reptiles (lizards, snakes, frogs) mainly live here.

SUBJECT

is the layer with shrubs and growing trees. This is where the eternal battle between the young plants for light and nutrients takes place. Many plants will first grow from seed. But not all of them will survive. Some will be eaten by deer and deer. For others, there will not be enough water because they will fall on a sunnier spot and dry out in the summer. For still others, there will be too little light and their growth rate will be very slow. On top of this, there may be insects feeding on the leaves. Few of them will grow up. In between there is animal life: foxes, deer, wild boar, raccoons, deer, badgers.

THE CROWN OF THE TREES

The crowns of the tall trees are especially home to birds, some insects, but also clever squirrels or forest martens jumping over the branches. In the crowns of the trees, you can see a lot of different leaves and needles (this transformed leaves!). Birds eat insects feeding on the leaves, woodpeckers search for larvae in the wood by dissecting it with their beak. Still other birds eat seeds, fruit, and birds of prey (owls, buzzards, eagles and others) hunt smaller mammals or amphibians.

What is the forest actually for?

It depends on who we are asking. If we are talking about nature - a forest is a home for animals, a forest is a community of trees and other plants that live with each other in complicated relationships. The forest feeds. The forest produces the oxygen we all need. The forest humidifies the air (evaporation of water from the leaves). A life cycle takes place in the forest.

And to humans, what is a forest for? The most important function is of course the production of oxygen. In addition, people use the resources of the forest: mushrooms, berries, wood, animal meat. It is important that this use does not disturb the forest ecosystem too much - that is, not to destroy it and not to take everything at once.

> For us today, the most important function of the forest (apart from oxygen of course!) is the incredible ability of the forest to soothe our bodies and minds. We will devote a separate chapter to this topic.

Since the forest is so generous to us, let us respect it so that it serves us for as long as possible.

Today's task should draw your attention to the fact that, unfortunately, not all people consciously use the benefits of the forest. Some people come into it and destroy it, behaving noisily (which can frighten animals) and leaving lots of rubbish.

Let's show the forest that not all people are indifferent and let's go together to clean up the forest.

To accomplish this task, prepare accordingly.

FORESTRY TASK 1

Collecting litter in the forest together

WHAT WE WILL NEED:

- [ ] **rubbish sacks**
- [ ] **gloves** (preferably reusable) - there may be bacteria and other pathogenic micro-organisms on the rubbish. Take extra pairs of gloves, you may be able to encourage someone else to help.
- [ ] **hand disinfectant**
- [ ] **wet wipes, paper towels** - if you had to wipe your hands
- [ ] **rucksacks with drinking water**

How to do it?

- **plan your route in advance.**
  Check with the adults to whom the area belongs - maybe the support of the owner or administrator can be arranged, e.g. for waste collection
- **divide into teams**
  (Even within one family or group of friends) each team collects a different fraction of rubbish. And so you will have a team: plastic, metal, glass and mixed. Remember that glass is always the most abundant, so it is a good idea to have someone in this group of adults
- **Consider beforehand where you can dispose of the rubbish you have collected** or whether you can transport it to a suitable place so that you do not leave it in a forest or clearing. You can also notify the council office that you are organising a litter pick-up and arrange a place to collect it.
- **take a souvenir photo**
  and put it in the school media to encourage others
- **as a reward, have a bonfire or go out for ice cream :)**

INSPIRATION 2

what do hedgehog and bat have in common?

How to care for animals in spaces urban/with its surroundings

A dose of knowledge:

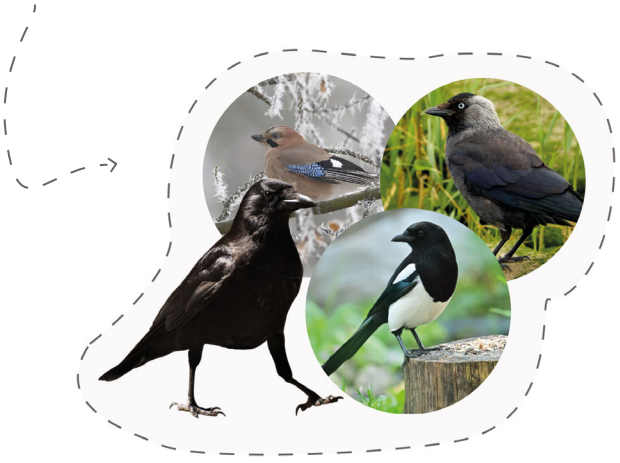
Animals around us

No matter where you live: in the countryside or in the city, there are animals all around you. We humans, by establishing our settlements, building roads, railway tracks, etc., take away space for wild animals to live. Most animals need a certain amount of space to live (known as territory), so when we occupy their home, they have nowhere else to go because everywhere is already ‚occupied'. So they stay with us in the same space, trying to adapt to life in the new conditions. For many animals, this works out perfectly.

Can you name the animals that live in cities? Let's try by group:

BIRDS

Magpies, crows, jays, rooks, jackdaws



or the corvidae family - these incredibly clever birds have learned to take advantage of the presence of humans. As they are omnivorous, they feast on rubbish dumps. They take advantage of moving cars to crack hard nut shells - they drop the nuts onto the road and wait for the car to crack the nut, then eat the contents.

Swifts

Sky-hunters of mosquitoes, wasps and midges. In their natural habitat, they live in rock crevices or hollows. However, they have become so fond of our apartment blocks that it is currently difficult to find them during the breeding season outside the cities. Recently, there has been a great ‚fashion' for mounting special boxes for these birds on the facades of buildings. Have you seen them?

Did you know that one adult swift eats around 20,000 insects a day? Thank you swifts for eating mosquitoes.

Other birds

such as sparrows, pipits, all thrushes (song thrush, quack, blackbird), starlings, woodpeckers, owls, small songbirds and, of course, pigeons, of which there are most in cities - do you know these bird species?

SAPS

Rodents

the all-too-familiar rats and mice that feed on the leftovers from people's tables - and there is no shortage of these in the city.

Hedgehogs

there are a lot of them in cities, they are very useful because they eat insect larvae; also those that are pests of plants. They stomp around at night. They fall into winter sleep.

Martens

I don't think any of you have seen a marten, because it is a nocturnal animal that hides very well and the city offers it great hiding places and a full larder. The marten eagerly eats everything it encounters on its way.

Bats

the only flying mammals in Poland! Very valuable animals in cities, feeding on nocturnal insects (and sometimes fruit) - one can say that they make a team of cleaning up the city with hedgehogs and swifts. You may notice bat boxes in the city - they are different from those for birds. Can you find them?

Wild boars and foxes

have become very familiar with the city and its people, and often wander the city streets at night

AMPHIBIANS AND REPTILES

Frogs, toads, lizards and newts

important insect eaters. But unfortunately they are animals that are very sensitive to pollution and changes in the climate.

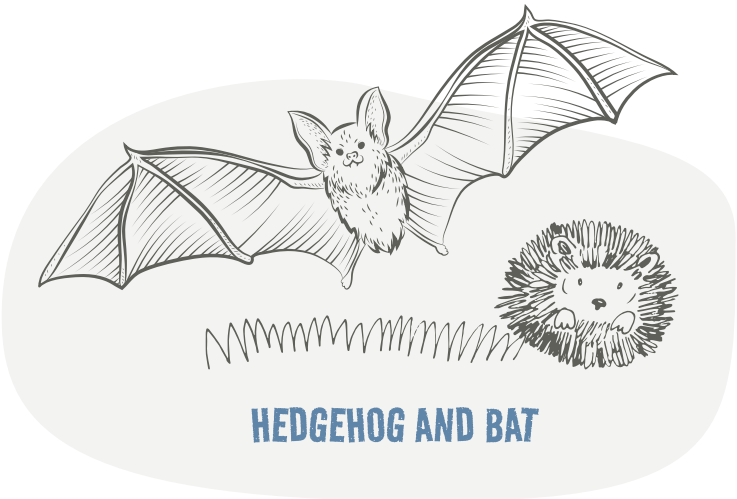
> We could talk for a long time about insects (yes, they are animals too!), but we will devote a separate chapter to them.

As you can see, there really are many animals living alongside us. Their presence is very important for the equilibrium of nature. And we are part of it. Therefore, think of the animals around us as friends. We can do something good and important for them.

What ideas do you have to help support the wildlife around us?

Here are some ideas you can use in your area

- **drinkers can be made for them** (see next chapter)
- **feed the birds according to their needs** (never bread and mouldy food scraps!)
- **plant plants with fruit for birds**
- **support organisations that care for biodiversity**
- **maintain greenery on balconies**
- **do not shoot firecrackers on New Year's Eve** - whole flocks of birds and other animals die of fright from them
- **do no harm, do not frighten wildlife;** just let them live alongside



HEDGEHOG AND BAT

As we mentioned, the hedgehog and the bat are our insect clean-up team for the city.

Have you ever wondered what they have in common? Hedgehogs and non- hedgehogs share some interesting characteristics, even though at first glance they seem quite different.

Here are some common points:

1. **Nightlife**
   Both hedgehogs and bats are mainly active at night. This is when they hunt, search for food and explore their territories.
2. **Insectivity**
   Hedgehogs and bats often eat insects. Bats usually feed on flying insects, while hedgehogs hunt those that crawl on the ground, such as earthworms or beetles.
3. **Hibernation**
   Both species are able to hibernate in winter. Both the hedgehog and the bat go dormant during the cold season to survive the harsher weather and food shortage.
4. **Unique defence mechanisms**
   Hedgehogs protect themselves from predators by curling up in a ball of sharp spikes, and bats often take cover in hard-to-reach places such as caves and crevices, avoiding danger.

Despite their differences in appearance and way of life, these two animals have many fascinating features in common!

FORESTRY TASK 1

Home for the hedgehog

WHAT WE WILL NEED:

- [ ] **A quiet place, somewhere off the beaten path.** It could be a corner of the school garden (where no one runs), a spot in the bushes in a park, or somewhere in your neighborhood.
- [ ] **Leaves, mowed grass, and sticks**
- [ ] **A handmade informational sign**

HOW TO DO IT:

Simply make a loose pile of sticks, leaves and grass. You can start by building a structure out of sticks and then sprinkle it with leaves and grass, and then cover it with another layer of sticks to keep those lightweight elements from blowing away.

It would also be good to prepare a sign announcing your initiative so that no one treats the hedgehog house as a pile of rubbish.

FORESTRY TASK 2

Home for the bat

WHAT WE WILL NEED:

- [ ] **Class fundraiser** – The price of one nesting box is around 60-100 PLN. Depending on your budget, collect the appropriate amount.
- [ ] **Online link to purchase the nesting box**
- [ ] **Teacher or guardian's assistance in placing the order**
- [ ] **Ladder, tools, pegs, nails**

HOW TO DO IT:

The boxes should be hung at a height of min. 4 m, in a place sheltered from wind and rain and in a sunny position (south-facing).

They can be hung from trees or on the walls of buildings.

INSPIRATION 3

POLLINATING INSECTS

What is pollination?

We learn about pollinating insects.

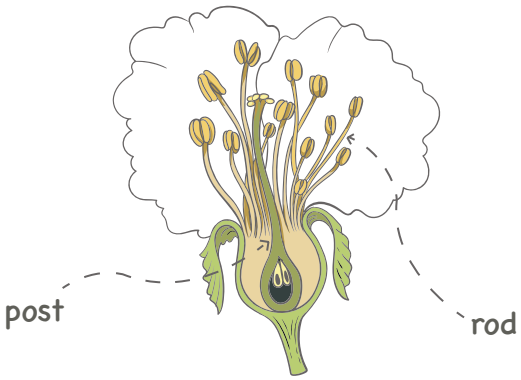
A dose of knowledge:

POLLINATION AND FLOWER STRUCTURE

Surely each of you has heard about bees and about plant pollination. That it is so important and that without bees the world would end.

And do you know why? What is this dusting actually? And why is it so important? We are already in a hurry to explain.

To understand this, we need to start with the flower and its wake.



EVERY plant in the world produces flowers. This may seem unbelievable, after all, on many plants we know we have never seen them.
This is because some plants produce flowers that are UNPOORABLE, i.e. not very ornamental.

They are not colourful and do not smell. They are small and do not resemble flowers. This is due to their pollination strategy - they don't need to attract insects because the wind helps them pollinate. However, most plants - especially the ones that are used crops (e.g. vegetable or fruit crops), it needs an insect to carry out pollination.

Regardless of what the flower looks like, inside, each flower has the same elements. There is the pistil (female reproductive organ) and the stamens (male reproductive organ).

The stamens produce pollen which, when it falls on the stigma of the pistil, fuses with the ovule and fertilisation occurs - a fusion of two cells (just like a sperm and an egg cell). From this moment on, the resulting zygote starts to divide several times (a zygote is when a male cell unites with a female cell and the genetic material is exchanged, and all the newly formed cells now have the pollen and ovary genes mixed together). From the zygote, a completely new organism is formed - a fruit with a seed. The seed, when it falls to the ground, will give rise to a new plant, which will one day flower ... and the cycle will repeat itself.

So see that all this pollination and reproduction is only necessary for plants to **prolong the existence of their species.** And we humans benefit from:

- **seeds** – we eat almonds, bread with relish made from wheat grains
- **fruits and vegetables** – which are created „by the way" - as a tasty seed covering, encouraging animals to eat them and thus spread the seeds
- **plant fibres** – cotton, flax, hemp, from which clothes are made
- **many herbaceous plants** for feeding livestock, from which we have meat and milk

Can you imagine life without these things? That's right.

REPAIRS

For pollination to occur, an insect is needed which, while feeding on pollen and nectar, pollinates the flowers - transferring pollen from one flower to another on its body. The insects that do this are called pollinators. The best-known pollinator in the world is the honeybee. But not the only one!

Only half of the world's plants are pollinated by this human-bred bee! The rest of the job is done by:

- **other species of wild bees** (in Poland we have as many as 470 species!) - most of them do not live in flocks at all, but alone and very often live in underground burrows. An example is the MURARKA, which, unlike the farm bee, lives alone. It gets its name from its habit of building nests in cracks, tubes or other small openings, which it then seals with clay, dust or silt - like a ‚mason bee'.
- **day and night butterflies**
- **ants**
- **flies** (or to be more correct: flycatchers) - many of which even resemble bees in appearance
- **wasps**
- **certain mosquitoes**
- **beetles**

So what? With this knowledge, do you feel encouraged to take care of pollinators?
Yes? SUPER!

Here is how we can do this:

- **not** pointlessly **exterminate** wasps, mosquitoes and other insects just because we don't like their presence,
- **do not destroy** the natural habitat of wild bees,
- **establish flower meadows,**
- **prepare insect houses and drinkers** - water is insanely important for their survival, especially in summer!
- **participate in local initiatives** aimed at environmental activities by purchasing fruit and vegetables from local and organic farms.

How to identify pollinators

It is also worth learning how to distinguish between beneficial dusting insects and nuisance biting parasites.

Often at the sight of a bumblebee we shout „bittern!" and want to chase it away. A real bittern (cattle bittern) is more like a nuisance fly flying around us. Bitterns actually attack and bite because they feed on blood.

Pollinators, on the other hand - although they have stingers, they only use them when threatened to defend themselves.

The most common pollinators in Poland are:

- **Honeybee** – is smaller than a wasp, hairy and the colours of the stripes on its abdomen are not bright
- **The ground bumblebee** – ound and downy - one of the larger wild bees. He is the one we fear the most because he makes a loud sound when he flies. Unnecessarily, because it is gentle.
- **Buzzers** – flies (fireflies) that resemble a bee in appearance, but have characteristic large mossy eyes.

FORESTRY TASK 1

We make insect drinkers

WHAT WE WILL NEED:

- [ ] **plastic ice-cream containers** or other not too deep
- [ ] **stones**

HOW TO DO IT:

Prepare containers and look for large, flat stones - such that their height is greater than the height of the box. The stone should provide an island on which the insect can sit to avoid falling into the water.

Arrange the stones in containers and pour in the water. You can place your watering can on your balcony or windowsill.

It is very important to replenish water regularly and to keep it clean. Insects remember places where they can drink.

FORESTRY TASK 2

Planting a flower meadow

WHAT WE WILL NEED:

- [ ] **flower meadow seeds** - preferably not mixed with grasses
- [ ] **bag of all-purpose**
- [ ] **earth spade**
- [ ] **rake**
- [ ] **watering can**

HOW TO DO IT:

The seeds are best sown between April and June.

Find a secluded and sunny spot in the school garden - 1m x 1m is enough. Of course, it can be larger. Ask an adult to remove the turf with a spade. Then add fertile soil from a bag (50l/1m2 is sufficient) and mix with a rake. Sow the seed according to the instructions on the packet. Cover the seeds gently with soil - just rake after sowing. From this day on, water daily or every other day - depending on the weather.

INSPIRATION 4

WHAT A FOREST SMELLS LIKE

Why is it worth being careful in the forest?

What does the forest offer us?

A dose of knowledge:

THE FOREST AS OUR NATURE

Well? What does a forest smell like to you? What do you associate the smell with? Are your associations pleasant or not?

In all probability, there will be positive associations in your responses. Do you know why? Because we humans are part of nature. We are animals, mammals that have been connected to the forest for centuries. Our original ancestors lived here, they hunted here, they lived here. The forest and nature were man's natural habitat. It is only with the progress of civilisation that we have gradually become disconnected from nature. And that is to our detriment.

Forest deficit

Insufficient exercise causes harmful changes to our bodies, both to our posture (e.g. a crooked spine or stiff joints) and to the function of our internal organs (e.g. tra- nisms or heart disorders). However, we do most harm to our mental health. Our brains are exposed to stimuli from devices - internet phones, computers, tablets - from morning to evening. The amount of colours, sounds, blue light from screens, interesting games, videos, chat rooms... our brains are working non-stop processing this information. And every organ needs to rest in order to rege- nerate its strength for the next task. Such a constantly agitated nervous system causes our bodies to be is constant tension. We can't even relieve it with movement because we spend our time sitting down.

A teraz wyobraźcie sobie, że wystarczy 20 minut spaceru w lesie (im częściej tym lepiej!) aby, równoważyć ten szkodliwy tryb życia, jaki dzisiaj prowadzimy. Jest to potwierdzone wieloma badaniami naukowymi!

Here is how the forest helps us:

- **wthere is silence** (or natural sounds) in the forest - our brain rests, it can regenerate before the next tasks, which improves its performance and its capabilities
- **the lack of artificial stimuli causes a decrease in the stress hormone** (cortisol) - as a result of which the heart rate improves, we breathe better (oxygen reaches all body cells properly), the body relaxes and the organs can work normally
- **The colour green is read by our brain as „calmness"** - by calming down certain parts of the brain, the „processor" is slowed down in favour of other activities. Children who go to the forest regularly have a better memory as a result and find it easier to concentrate on tasks
- **The soothing effect of the forest** also increases the ability of our immune system to fight disease.
- **essential oils** floating in the forest air improve mood, strengthen the immune system - some of them have antiseptic effects
- **the soil-dwelling bacteria Mycobacterium vaccae** causes the secretion of the happy hormone serotonin in our bodies

- **the air in the forest is clean** - our body gets better oxygenation
- **When walking in the forest we make a whole-body movement** - so necessary!
- **in the forest we can play hide-and-seek, run, jump in the trees** - play is something all children need in order to thrive.
- **In the forest we can observe wild animals and rosaliva** - learning through live contact is the best form of memorisation
- **by being close to animals, we develop empathy skills.**

See how much the forest gives us! And it's all FREE and right at your fingertips.

WHAT WE WILL NEED:

- ☐ forest

FORESTRY TASK 1

Discover forest stimuli and hug trees

HOW TO DO IT:

Organise a trip to the forest. Once you are in the woods, stop in a nice place, take 5 deep breaths and then complete the tasks - it is best if the children answer one at a time:

- list the sounds your ears register
- list the colours that your eyes perceive
- touch something that is close to you and name how your sense of touch feels (wet, dry, slippery, rough, warm, cold, etc.).
- Each person should choose a tree and embrace it, rest his or her forehead against its bark, and silently embrace it for 2 minutes.

INSPIRATION 5

SHAPES IN NATURE

Are we part of nature?

Natural shapes.

A dose of knowledge:

Do you feel part of nature?
Many people disagree with the idea that we are animals. I wonder why? Is being an animal a bad thing?

If we start to look more closely at nature (by going outdoors, into the forest, into a field) we will start to see more and more similarities to it in us. Of course, it is an incontrovertible scientific fact that we are animals (mammals to be precise), but if you would like to feel this more than understand it, we encourage you to observe. Take a deer as an example. Or the tree outside your window.

What we have in common, after all, is that we all breathe. Yes, plants breathe too! If you haven't learned about this yet, you can find out here: during the day, plants carry out photosynthesis, whereby they convert CO2 from the air (carbon dioxide) into sugars and incidentally release oxygen into the atmosphere as a by--product. At night, on the other hand, the sugar factory takes a rest (because there is no solar energy to drive it) and then the respiration process takes place - then the plants take oxygen from the atmosphere.

The second thing that unites all living organisms is nutrition and excretion. We all have to eat to live! Animals have to get their food themselves (be it deer, herbivores, carnivores or omnivorous humans), while plants produce it themselves through the aforementioned photosynthesis.

Another process that connects deer, trees and humans is reproduction – - all living things on earth strive to prolong their species by giving birth to offspring. In animals, however, it is the egg cell that joins with the sperm to form the embryo, and in plants it is the pollen falling on the stigma of the pistil in the flower that fertilises the ovary, and so the seed is formed. It's really the same thing, just the names are different.

What we also have in common is that we grow and perceive stimuli – that is, our cells have the ability to enlarge and divide; in plants from a seed to a large tree, in animals from a newborn to an adult. We perceive visual, auditory, gustatory, olfactory and tactile stimuli and plants register light, earth gravity, touch and chemical stimuli.

Let's also take a look at the structure of the body: animals stand on their haunches or hooves, trees have roots, in us the blood vessels transport oxygen with the blood, and in trees the vascular bundles (phloem and wood) form such a transport network. As humans, we have our own non-repeatable characteristics, such as the fingerprints on our fingertips; in trees, a similar characteristic would be the grain pattern in cross-section - each completely individual.

Note that when we look close up we see many differences, but if we look further away we find that all these life activities and even construction are roughly the same - they fulfil the same purposes.

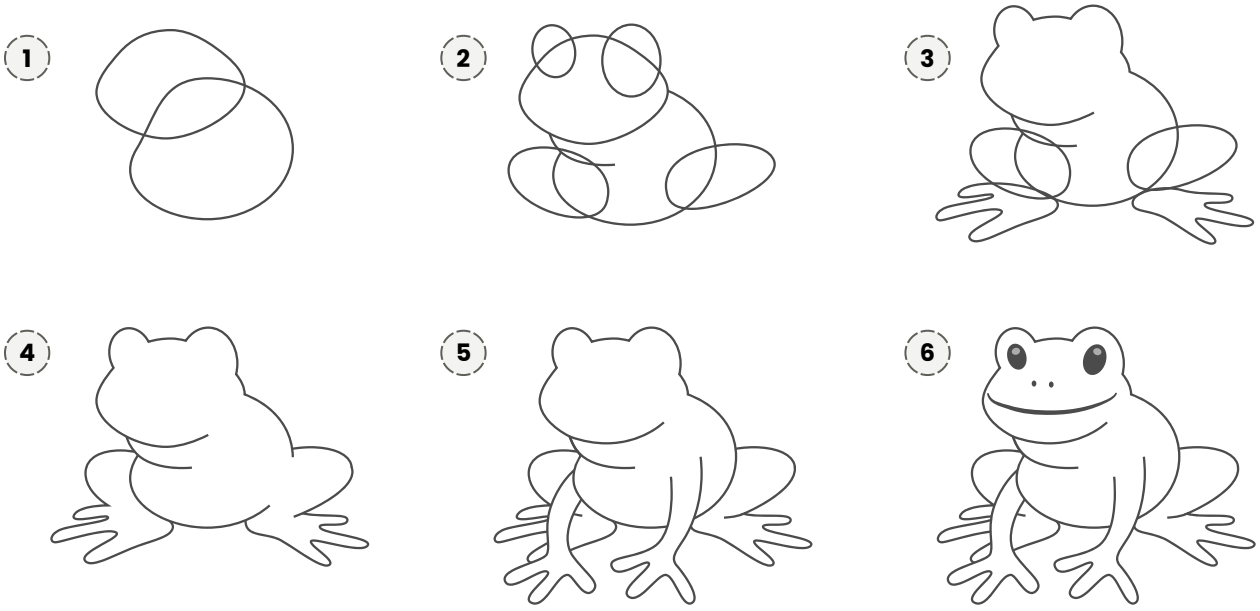
Geometry in the forest

Another curiosity is the shapes in nature. I'm sure you know the figures from geometry - square, circle, triangle. If you look around you will see them everywhere! The human body created in perfect symmetry as perceived by Leonardo da Vinci is not the only geometrical form.

Look at the shapes of the leaves, at the perfectly hexagonal cells in the honeycomb, at the incredibly complicated but perfectly symmetrical snowflakes.

If any of you have ever studied drawing, you also know that there are figures hidden in the bodies:

Nature uses mathematics brilliantly. Discover it with joy!



WHAT WE WILL NEED:

- [ ] Sheets of paper
- [ ] Crayons

FORESTRY TASK 1

We are looking for natural shapes

HOW TO DO IT:

Look for shapes in nature in the forest: triangle, square, circle. Find min. 5 examples of each shape. Draw them on cards. Make them into human and other animal shapes. Can you make two different organisms from the same shape?

INSPIRATION 6

WORLD DIRECTIONS

What are the cardinal directions, how to determine them, and how to orient yourself in the field?

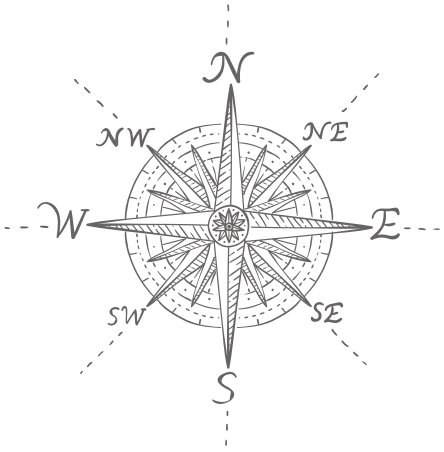
A dose of knowledge:

WHAT ARE WORLD DIRECTIONS?

World directions are special ‚signposts' that help us find our way around space. The main four directions are north (N), south (S), east (E) and west (W). We can think of them as lines on a map that show where something lies in relation to our position. For example, if something is ‚north', it is in front of you if you are facing north.

We have written international designations next to the Polish names of world directions.

Imagine that the world's directions have their own ‚names' to help us recognise them easily on maps and compasses. These special ‚names' are letters that are abbreviations for the English names of the directions. But what are these letters?



N – is an abbreviation for **‚North'**, meaning **north. S** – is an abbreviation for **‚South'**, meaning **south. E** – stands for **‚East'**, meaning **east. W** – is short for **‚West'**, meaning **west.**

You will find such letters on most maps and compasses, because English is the language that is used all over the world. As a result, no matter what country you are in, these letters always mean the same thing! They help people everywhere, not just in Poland, to easily find their way or understand which direction they are facing.

For example, when you see the letter N on a map, it will always be north and the letter S will stand for south, whether you are in Poland, the USA or even Africa.

How do you determine the directions of the

The most common way to determine the directions of the world is to use a compass. A compass is a small device with a magnetic needle that always points north. Here is how it can be done:

1. Stand still, holding the compass in your hands.
2. The compass needle will begin to move until it aligns with the direction of north.
3. Once you know where north is, it's easy to determine the other directions:
   - It will be noon behind you.
   - To your right will be the east.
   - Left – West.

If you don't have a compass, you can determine the directions of the world using the sun. The sun rises in the east and sets in the west. During the day, facing the rising sun, you will have east in front of you, west behind you, north on your left and south on your right.

How do you get your bearings on the ground?

When you are outdoors and need to determine directions, there are a few useful tips:

1. **The sun** - as we have already mentioned, in the morning the sun rises in the east and in the evening it sets in the west. Based on the position of the sun, you can easily determine the directions.
2. **Stars** - you can look up into the sky at night. The Pole Star (also known as the North Star) always points north. It is visible all year round, so it can be a great signpost.
3. **Trees and plants** - nature can also po- us! Mosses and lichens often grow on the north side of trees and rocks because there is more shade there. Most trees have a more lush and sunny v-side, where more light reaches.
4. **Shadows** - try to observe your shadow. If you stand at midday, which is when the sun is highest in the sky, the shadow will fall in a northerly direction.

World directions are not only a way to find our way, but also a way to learn more about the world around us. They help us understand how celestial bodies move, how our planet works and how to explore new places safely.

WHAT WE WILL NEED:

- [ ] cards
- [ ] pencils, crayons

FORESTRY TASK 1

We create the map

HOW TO DO IT:

Go to the woods and, using the above-mentioned tips, get your bearings and draw your map. Mark the characteristic elements on a piece of paper, which will help you to get your bearings: roads, buildings, meadows, forest, lake, etc. Mark the sheet of paper with N, S, E, W and, standing in the middle, draw what you can see in each direction. Maybe it will be a tall tree, maybe a hill, maybe a fallen tree or a beautiful bush?

See if your maps look similar, would your colleagues be able to get their bearings using your map? Work together to refine your maps so that they are readable by everyone.

INSPIRATION 7

GRIMES

Mushrooms
– who are these
strange organisms?

A dose of knowledge:

WORLD OF MUSHROOMS

The natural world is wildly diverse. For decades, people have been trying to describe and organise it in order to make it easier to understand nature. And it is indeed possible to find some logic and order in nature.

> Humans have so far created five kingdoms of living organisms: animals, plants, bacteria, protists and Fungi.

As with the other kingdoms, there is a great diversity of forms and functions among fungi. Irrespective of their appearance and size, the bodies of all fungi are made up of a mycelium - that is, a collection of cells called filaments. Their structure is very strange indeed, as some of them may have only one cell! (yeast, for example), while others develop an enormous mycelium, such as the dusky mycelium - the specimen studied in Oregon, USA, covers an area of almost 10 km2 and weighs about 600 tonnes. It has apparently lived for 8,000 years.

Those mushrooms you know from the woods (and if you don't, I'm sure everyone associates mushrooms) are some of the really many forms. These ‚hats' that we eat are the so-called fruiting bodies - mushrooms only produce them in order to use them to spread their ‚seeds', i.e. spores. Most mushrooms in the world are not visible to the naked eye.

How do they eat mushrooms?

Fungi are adulterous organisms and the diversity of their food acquisition could suggest that they are intelligent.

Some fungi exchange services with plants. This is called mycorrhiza - the plants provide the fungus with food produced during photosynthesis (up to 30% of what they produce themselves!) in exchange for communication services, for example - a network of fungal hyphae entwines the roots of many trees in the area, so that the trees can communicate with each other by sending special chemical or electrical signals. Fungi also help plants to extract minerals from the soil.

Other fungi are sometimes parasites - that is, they rob plants of sugars and can lead to their death. An example of this is the common watercress known from Polish forests.

Probably the most useful group of fungi are the sa- profitic ones - i.e. those that feed on organic matter. In other words, they convert what was recently alive (but no longer is) into simple minerals. Just like some insects and bacteria. Thanks to them, we are not in a sea of leaves and carrion.

Where do mushrooms live?

The amazing fact is that **fungi are found literally everywhere**: in the soil, in the air, in the water, on plants and even inside various animals - as well as in our own bodies. They are such a huge kingdom and have developed a multitude of different adaptations to live in literally any environment. Scientists have found that next to bacteria, they are the oldest organisms in the world!

Are mushrooms necessary?

Many fungi are used by humans in everyday life. An invaluable turning point in the history of mankind was the discovery of penicillin, a substance produced by brush fungi. This substance is an antibiotic acting on many bacterial diseases. Before its discovery, thousands of people were dying from angina, for example.

Everyone (probably?) loves pizza and fresh bread - we have them thanks to yeast. They also take part in the fermentation process in the production of various foods, such as pickles.

Many people appreciate the taste qualities of forest mushrooms or porcini. Well, who doesn't like Christmas dumplings!

FORESTRY TASK 1

We grow mould (fungus) on a slice of bread

WHAT WE WILL NEED:

- ☐ **a transparent container** with a lid or a string bag for food
- ☐ **a slice of bread**
- ☐ **a warm place**

HOW TO DO IT:

Sprinkle a slice of bread with water and place it in a container.

CAUTION: Keep the container tightly closed, as mould is harmful to health.

Place the container in a warm place, but not in direct sunlight. Look in every day and watch for the appearance of mycelial shreds and then the spores with which the fungus reproduces.

Do you know where the mould came from on the bread?

After the experiment, throw the mouldy slices into the garbage (fraction: mixed)

INSPIRATION 8

TREES

Trees are also living organisms. We learn about their structure and significance.

A dose of knowledge:

TREES ARE AN ELEMENT OF LIVING NATURE

Trees grow almost everywhere: in the forest, in the city, in clearings, between fields, at the seaside and in the mountains. We pass them by and notice them when they lose their leaves in autumn. Apart from that, they almost always look the same - as if they were not animated. We once had an encounter with children who strenuously denied that trees are living organisms! „Why do you think so?" - we asked. The children said that trees don't move, eat or feel. How wrong they were! OK, let's start from the beginning.

In the chapter ‚Shapes in Nature', we mentioned what features an organism must have in order to be called alive. As a reminder, these were: respiration, nutrition and excretion, reproduction, growth and development, perception of stimuli, movement. And trees exhibit all these functions - although we may not see it. Trees are large, monumental and slow. They usually reach their target height after a few decades, so from a human perspective the process is imperceptible. But when we see one tree once every 10 years, we can see a clear difference!

Vital functions of trees

When we talk about plant nutrition, it is also hard to believe, because we cannot perceive this phenomenon with our senses either. Plants are one of the few organisms on earth that are self-feeding. This means that they do not need to obtain food. They produce it themselves during photosynthesis, which is a series of chemical reactions taking place through solar energy and green chlorophyll. In addition to the sugars produced in photosynthesis, plants take up various elements from the soil by means of their roots.

If you ask about movement and reaction to stimuli in trees - as they most certainly do!

Movements in plants are called tropisms. Some plants, for example, turn their leaves and/or flowers in the direction of the light (e.g. the sunflower), you know flowers that open during the day and close at night, young shoots of trees (and other plants) ALWAYS grow towards the light. If you turn a potted plant 180 degrees, its shoots will probably be pointing towards the window after just a day or two.

It is very interesting to observe the movements of the tendrils of climbing plants in an accelerated motion film. bz4KxRkjZfE?feature=shared

Scan the QR code or click the link below: https://youtube.com/shorts/bz4KxRkjZfE?feature=shared

Plants also recognise the direction of gravity – the shoots of most of them grow in the direction opposite to it, but the shoots of weeping willow, for example, grow downwards, i.e. in line with the direction of this force.

Trees are also able to communicate with each other - whether through the aforementioned network of underground connections from the mycelium or through

the chemical compounds secreted and received by the leaves. Trees can have their own sympathies and antipathies - adult trees growing in the forest can support the development of these „likeable" (i.e. desirable - performing certain functions) or prevent the growth of others.

Amazing abilities

Trees can also do other amazing things. Spruce trees attacked by the bark beetle can, in self-defence, produce a large amount of resin in a short space of time to seal the pest and stop it from digging corridors in its body.

> Trees growing in the forest are able to provoke rain if they need it - through increased evaporation of water from their leaves, a , rain cloud' forms over them.

A damaged tree can heal, just like a human wound - plant ‚scabs' are made of callus, a unique tissue from which anything can grow: be it a root, a stem with buds or a flower. This is decided by the plant using the appropriate hormones to control it. Trees are able to transport water from the roots to the crown of the tree (i.e. in the direction opposite to the gravitiation) without using any pump at a speed of about 70 cm per minute! Even the world's tallest tree, at 115 m tall. Trees growing in the tundra have developed special me- chanisms for protection against severe frosts.

The structure of the trees is also amazing. There is great diversity among them. Essentially every tree has the same structure:

- **roots**
- **the trunk**, in which the water (xylem) and nutrient (phloem) bundles run, covered by the bark
- **a crown** consisting of branches and leaves.

However, depending on the environment in which they grow, they can transform individual elements. **Baobabs** growing in Madagascar store up to 120,000 litres of water in their large trunks. Trees of mangrove forests have developed specialised root structures that enable them to have root respiration despite growing in salt water. **Eucalyptus trees** from Oceania have beautifully coloured bark. **Dragon dracaena** has a perfectly spherical and very flat crown.

The smallest tree in the world measures just a few centimetres (herbaceous willow) and the largest is over 115 metres (giant sequoia) - half the size of Warsaw's Palace of Culture.

FORESTRY TASK 1

We give the tree an expression

WHAT WE WILL NEED:

- ☐ **previously prepared clay** (sculpture clay or any other clay, even construction clay) in the form of a plastic mass
- ☐ **sticks, pebbles, leaves, cones and other gifts from the forest**

HOW TO DO IT:

Go to the forest or park with the prepared materials. Shape a ball of clay about 10 cm in diameter. Then flatten it out in your hands. This surface will be the face of the tree. Choose a tree that you like. Glue the mass onto the trunk. Finally, decorate the face according to your own ideas with the help of sticks, pebbles, leaves, moss collected from the ground. Do not tear up live vegetation.

Does your tree have a name? What facial expressions does it have? What emotions have you managed to show on its face?

INSPIRATION 9

SOIL

The fertility of our soils

A dose of knowledge:

SOIL COMPONENTS

Soil, ground, substrate. We all know that it's something we walk on and plants grow in. But do you know what soil actually consists of? And why should we take care of it too?

In very simple terms, soil is made up of the crushed rocks that make up the interior of our planet and organic matter - the decaying remains of plants and animals, their excrement decomposed by small organisms. These two parts form the base. Their fine particles adhere to each other, but let's be honest - not very tightly. We say that the soil has a tubular structure. Between them are tiny spaces where there is room for air and water, which in a good soil together make up as much as 50% of the composition!

What's squeaking in the soil?

Good, healthy soil is also home to an abundance of organisms!

There are more of them in one tablespoon of soil than there are people on the entire planet (i.e. more than 8 billion!). Most of them are only visible under a high-magnification microscope; they are all sorts of bacteria and single-celled fungi (not the kind we collect in the forest!). A little larger will be protozoa and nematodes. There are also earthworms and the larvae of many insects, centipedes and crocodiles cionogi and many, many others with funny or difficult to remember names. What is worth remembering is the purpose that all these organisms have - they are in charge of ordering the world, that is, metabolising matter. If it weren't for them, we would have perished long ago under a huge pile of leaves, and a great stench of carrion would have spread across the planet. These tiny creatures do the most important job - they close the metabolism cycle. That is, they turn what was once living matter into simple chemical compounds that become available to plants. Plants use these to build their tissues, which will then be eaten by herbivores. These in turn will one day fall prey to predators. When a predator dies, its body is subjected to decomposition - precisely by these microor- ganisms, and this cycle goes on unceasingly alongside us.

For this very reason, soil is a very important element of nature.

As we mentioned at the beginning, plants grow in the soil. Their quality and yield depends very much on the quality of the soil. If the soil has a good structure, is well supplied with water and air and is rich in nutrients due to the correct metabolic processes, we can grow delicious and healthy food.

We should also remember that soil is a virtually non-renewable resource - a 1 cm layer of soil takes 100 to 500 years to form! This is why sensible use of the soil is of such great importance.

What we can do to look after the soil:

SEPARATE BIO-WASTE

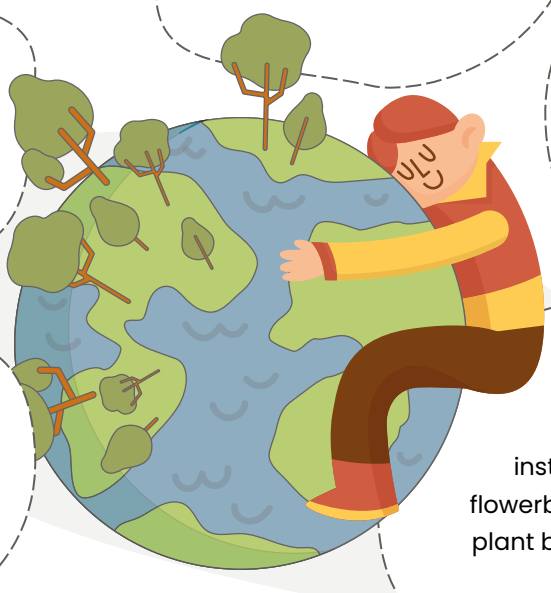
which will be used to produce compost - a natural fertiliser

DO NOT DISTURB

do not spill chemicals, oils, weedkillers, etc.

LIKE

soil and let them live peacefully



IF WE ARE GARDENING

practise crop rotation and mulch the crop with straw, grass or leaves

LOVE

instead of trimmed lawns and flowerbeds strewn with gravel - great plant biodiversity has a great impact on good soil structure

FORESTRY TASK 1

Check soil properties

WHAT WE WILL NEED:

- [ ] **3** 1 litre **jars**
- [ ] **sand** (can be from a sandpit) - 3 cups
- [ ] **powdered clay** - 3 cups
- [ ] **garden soil** - preferably peat-free - a small 2 - 3 l bag **of expanded**
- [ ] **clay** is sufficient - 2 l bag
- [ ] **a container of water** about 0.5 l

HOW TO DO IT:

Put an approx. 3 cm layer of expanded clay on the bottom of all 3 jars. Then, put a 5-7 cm layer of sand in jar No. 1, the same layer of powdered clay in jar No. 2 and a 5-7 cm layer of thoroughly mixed clay and sand in jar No. 3. Then pour about 5 cm of garden soil into each jar. Now pour in the water slowly. As if it were raining. Pour 100-150 ml of water into each jar. Note how long it takes for the water to reach the bottom in each of the jars. In which of the jars are the best conditions for the plant roots to develop, so that they do not rot or dry out too much?

If you have the opportunity - you can plant or sow plants in your jars and watch how they will grow in each jar.

INSPIRATION 10

NETWORKING - ECOSYTEMS

Relationships between elements of nature

A dose of knowledge:

ONE DOES NOT WORK WITHOUT THE OTHER

Nature is amazing. It is also incredibly complicated. People have been observing it for so many hundreds of years and still don't know exactly how it all works.

We could compare life on planet Earth and the interrelationships between all organisms to the workings of the human body - it is made up of many millions of cells that form tissues and organs, each of which is needed and cannot function without the others. What good is a brain if the lungs stop supplying it with oxygen? What good are our intestines if the heart stops beating and pumping blood, which transports nutrients to every corner in the body?

It is the same in nature. All elements are closely interconnected. The entire collection of organisms together with their environment and their interrelationships is called an ecosystem. For example, a forest ecosystem is a forest with all the plants, animals, bacteria and other organisms, soil, rocks, water, (micro-) climate and food chains that exist there.

We humans are also part of nature, although we belong to many ecosystems. In any ecosys- tem, every change has an effect. Sometimes ca- trophic, sometimes changing the direction. It's like pulling blocks out of a wooden jenga tower.

Look at the examples that have taken place in history:

1. **A famous story from Yellowsto- ne National Park** – armers were grazing sheep around the park. There were many wolves living in the park and the farmers were afraid that the wolves would eat all their livestock. Of course, there were cases of this happening because the wolves didn't know the park boundary and would come out of the park for the easy pickings that were put under their noses.
2. **The farmers fought so hard that they caused the wolves to be completely hunted down.** As a consequence of the disappearance of the wolves, there was an incredible increase in the number of deer and roe deer, which began to eat the vegetation down to the bare ground. Several areas of the park turned into steppe. The depleted vegetation on the banks of rivers reduced the number of bird species nesting in the coastal scrub. The number of beavers also decreased dramatically, as deer ate their tasty shoots from fallen trees. The bare river banks and the lack of beaver activity, meant that rivers began to change their course.
3. **Over the course of the development of human civilisation, the countryside has changed with human hands.** People needed firewood to build houses. So they cut down more and more forest, destroying the home of many animals. Instead of forests, there were clearings where cows grazed and fields where cereals were sown. The forest animals reduced their populations, while new animal species appeared in the open areas, which adapted to the new conditions and even specialised in them. One such bird is the capercaillie, which lives in coniferous forests, but needs berries to live, which grow in sunny places, i.e. where people have cut down the forest. Nowadays, this bird is already very rare in Europe and, in order to protect its habitat, forests are being cut down and optimum conditions

for blueberry bush growth are being maintained. But at the same time, with the felling of lasion is destroying the habitat of other typically forest animals, such as the black-backed woodpecker.

4. **Unfortunately, similar examples could be mentioned endlessly.** Even though we keep a close eye on nature, we are not able to notice certain correlations. Some of them are well hidden. Literally - underground. Not long ago, researchers discovered that trees in the forest communicate with each other. They send each other signals with information, just like we send chat messages. This is possible thanks to the densely woven network of mycelium underneath the ground, which connects the roots of the growing trees to each other in the neighbourhood. With the help of this network, the trees inform each other about pests or support the young trees in growing under difficult conditions.

The conclusion is that nature is more complicated than we humans might think and that it has its own mechanisms by which it is governed.

FORESTRY TASK 1

We observe ecosystems

WHAT WE WILL NEED:

- ☐ card
- ☐ crayons / pencil

HOW TO DO IT:

1. **Choose an ecosystem:** Choose one ecosystem that interests you. It could be a forest, a lake, a meadow, a desert or even a garden. Think about what plants, animals and other organisms live in this ecosystem.
2. **Draw an ecosystem pyramid:** On a piece of paper, draw a pyramid that shows the different levels of life in your ecosystem. Put plants at the bottom, herbivores (animals that eat plants) higher up, and predators at the very top.
3. **Connect the organisms:** Now draw lines to connect the different organisms to each other. Think about who is eating whom! For example:
   - The soil provides the plants with nutrients.
   - Plants are eaten by insects or rabbits.
   - Insects can be eaten by birds and rabbits by foxes.
   - When a fox dies, its body decomposes thanks to bacteria and returns to the ground, and the life cycle begins again.
4. **Name your connections:** at the end of each connection write how these organisms affect each other. For example: „the grass provides food for the rabbit" or „the fox hunts the rabbit".
5. **Think about it:** What are the consequences if one of these organisms disappears from the ecosystem? What will happen to the other organisms? Write your thoughts under the drawing.

INSPIRATION 11

OUR SENSES

How, through the senses draw more of life?

A dose of knowledge:

WE USE OUR SENSES

Did you know that each of us has superpowers that can make us true friends of nature? These superpowers are our senses! Thanks to them, we discover how beautiful and fascinating the natural world is. If you use your senses well, you can better understand and protect nature - and that makes you nature's best friend!

Sight – see what nature wants you to know. When you use your sight, you notice many things in nature that others may miss. It may be a bird building a nest, a small animal looking for food or a plant that needs water. When we look closely at the natural world, we learn to understand it better. And when we understand it, we can also protect it better. If you see litter in the forest, you know that it needs to be cleaned up so that animals have a clean home. Your eyes help you see nature's needs and respond to them.

Hearing – listening to the voice of nature In nature, we can hear many unusual sounds. The singing of birds, the rustling of leaves in the wind, the murmur of a stream - all of these

are the signals that nature sends to us. When we listen to nature, we begin to understand that we are not alone - we live alongside many other beings. Listening helps us to be attentive and caring towards those who cannot speak our language, but need our protection. Maybe you can hear the roar of a tree asking for more of space? Or the sound of water wanting us to keep the rivers clean?

Smell – discover the scents of nature. Smell is an amazing superpower! It allows us to discover the smells of nature - freshly cut grass, fragrant flowers, damp earth after a rain. When we smell these scents, we begin to notice,

how diverse and beautiful nature is. Fragrant flowers attract bees, which help them to bloom. If you smell smoke in the forest, you can react and prevent the danger of fire. The nose helps us to take care of the environment and be a vigilant guardian of nature.

Touch – feel nature in your hands. Touch is a unique power that enables us to get even closer to nature. When you touch the bark of a tree, the soft petals of a flower or rough moss, you feel how alive nature is. It gives us a sense of connection and responsibility for what we touch. Maybe you notice that a branch is broken and you can make the tree stronger, or you touch the soil and understand that it needs more water so that plants can grow healthily. By touching, we get to know nature better and thus learn to take care of it.

Taste – try the fruits of nature Let's not forget about taste! Did you know that the fruit and vegetables we eat are a gift from nature? By tasting its fruits, we understand how important it is to protect the soil on which they grow. When we take care of the plants and soils from which our food comes, we become friends of nature who care about its health. And a healthy nature gives us delicious, healthy food.

Movement in nature

Have you ever noticed how differently you move in nature? Running on soft mulch, climbing trees, jumping over streams - it's all completely natural to our bodies! In the forest, our movement is light and spontaneous, with no restrictions or set paths. It is in nature that our body discovers its full potential. When we run in the forest, jump over stones or climb trees, our body feels free and happy. This is the movement we are made for!

Why do we feel most comfortable in nature?

Have you noticed that when you spend time in the fresh air, you feel happier, calmer and full of energy? That's because our bodies and minds are invited to be in nature! Away from the hustle and bustle of the city, our bodies can rest and re-generate. Nature acts like a magic cure - it soothes our stress, improves our mood and gives us the strength to act.

In the forest, our breathing becomes deeper, our heart beats more calmly and we begin to feel connected to the world around us. There is nothing better than being in nature to feel really good.

What can you do to enhance your superpowers?

- Spend more time outdoors
- Listen to the sounds of nature
- Pay attention to what you see, feel and touch

When we use our senses and natural movement, our body becomes stronger and we become more connected to nature. This is our superpower, which we can exercise every day.

Thanks to our senses, we can see, hear, smell and even taste nature. The more we use these super powers, the more we begin to understand how precious the environment is. And when we understand nature, we can become its defenders.

Here are some ways you can become a true friend of nature:

- **Pay attention to what is happening around you** – are the trees, plants and animals safe and healthy?
- **Help nature**, by cleaning up litter and caring for plants and animals.
- **Enjoy the outdoors** – running, climbing and playing in nature is the best way to connect with it.
- **Bądź ciekawy!** Explore new places and look for adventure in nature using your super senses.

Remember that each of us can become a friend of nature if we just use our senses to get to know it better and protect it.

FORESTRY TASK 1

Getting to know our senses

WHAT WE WILL NEED:

- [ ] apples, preferably of several different varieties

HOW TO DO IT:

The task is to switch off some senses and sharpen others.

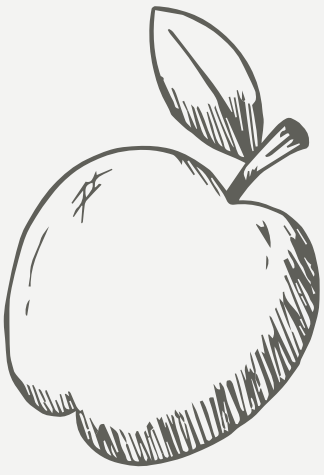
Take one apple in each hand. First close your eyes and explore the apple with your subsequent senses:

touch: touch the skin with your fingertips and describe whether it is smooth or rough, wrinkled, uniform, whether you can feel any thickening, warm or cold, sticky or not, thick or thin?

Taste: Bite into a piece of apple. Keep your eyes closed and see how it tastes. Take your time. Let the piece of apple stay in your mouth for as long as possible. Is the apple juicy? Crisp? Sweet or sour? Hard or soft? Now plug your nose and bite into the apple again. Do you get the same taste? Can you get the same sensations as without the plugged nose?

hearing: keep your eyes closed at all times. As you bite into your next bite, think about what sounds you can hear? What do you associate them with? When you take a small bite, is the sound the same as when you take a large one? When you rub the crust with your fingers does a sound come out?

Smell: if you have apples of different varieties, smell the different apples while keeping your eyes closed. Do they smell the same? Smell the apples that have not been bitten, and then the ones that have already been tapped. Does the skin smell the same as the flesh or different?



INSPIRATION 12

UNHURRIED WALK

How adversely affects us stress and rush

A dose of knowledge:

FEELING GOOD IN NATURE

Have you ever noticed how good you feel when you just walk slowly, admiring nature? Such an unhurried walk is a great example of living **a slow life (slow living/living at a slow pace)**. What does this mean? Slow life is a way of living where we allow ourselves to be still, stop and enjoy the moment. We don't always have to rush and hurry - sometimes it's worth slowing down because it makes us feel better and we have more energy!

Slow life principles

1. **Slow down** – You don't always have to do everything quickly. Think about how pleasant it is to sit down sometimes, look at the trees, listen to the birds sing or feel the sun on your face.
2. **Pay attention to the present moment** – Instead of thinking about what will happen in an hour, try to focus on what is happening now. Observe how the flowers are blooming, how the grass smells, or maybe you hear a bee buzzing! You can even say out loud or silently phrases like ‚I can hear the wind humming', this will help you become more practised.
3. **Do one thing at a time** – Instead of doing many things at once, it is better to focus on one. For example, when you eat dinner, focus on the taste of the food, and when you draw, think about colours and shapes.
4. **Take care to rest** – We all need moments to rest. This is not laziness! Resting, you give your body and mind time to regenrate.

What does haste do to a person?

When we are in a hurry, our body can start to feel tired and our mind becomes restless. Rushing makes us feel stressed - and stress is not our body's friend! Have you ever felt tired even though you slept a lot? Or perhaps you had problems concentrating at school? Haste and lack of rest are often to blame.

Our body does not like to be in a constant state of flux. If we rush too often, our nervous system can become overworked. It is the one that manages our body, thoughts and emotions, so when it is overworked, we can be more irritable, tired and sad.

THE NERVOUS SYSTEM - YOUR CONTROL SYSTEM

Our nervous system is the kind of control system that is responsible for everything that happens in our body. It consists of the brain, the spinal column and the many nerves that spread throughout the body. It allows you to move, think, feel and speak.

When you are calm, your nervous system works in its natural rhythm. It's like calm music for your body! A calm mind means more energy, a better mood and more concentration. This is why unhurried walks, reading a book or moments of silence are so important. Your brain can then rest and gain strength for the next challenge.

HOW DOES CALMNESS AFFECT US POSITIVELY?

Calm is like a magic medicine for our body and mind. Here's how it works:

BETTER SLEEP

When you are calm, you sleep better and your body has time to recover.

IMPROVED CONCENTRATION

When you are rested, it is easier to concentrate on lessons and your memory works more efficiently.

HEALTHY HEART

Calm also helps your heart to work at a normal rhythm, which promotes health.

LESS STRESS

When you give yourself time to relax, stress disappears and you feel more satisfied and happy.

Summary: Stop and enjoy the moment!

An unhurried walk is a great opportunity to slow down and give yourself a moment to catch your breath. Remember that you don't have to rush to achieve more. Sometimes the best thing you can do is slow down, relax and let your body and mind rest.

When you slow down, your body thanks you for it with peace, health and well-being.

FORESTRY TASK 1

Let's feel like a tree

WHAT WE WILL NEED:

- ☐ forest and good weather

HOW TO DO IT:

ZFind a place in the woods that is comfortable for you (perhaps soft moss or maybe a mountain of dry leaves), lie down comfortably and preferably take off your shoes. Lie down and breathe through your nose: inhale 5 seconds and exhale 5 seconds.

While breathing, observe the tree under which you are lying:

- imagine that you put down roots like it, that these roots nourish and stabilise you
- imagine that, like a tree, you have branches - stretch your arms upwards (all the while breathing calmly) and move your hands slightly as if your arms were being moved by the wind
- imagine that, like a tree, you are fed by the sun, feel the warm rays on your face, which nourish your body

Stay in meditation with the tree for 5 minutes, thanking it at the end for the time spent together.

INSPIRATION 13

WILD ART IN NATURE

How, through mindfulness find in nature the artist in you

A dose of knowledge:

INSPIRATION FROM NATURE, IN NATURE WE CREATE BEST

Have you ever thought that nature is the greatest art gallery in the world? You only have to look around you to see the endless possibilities of creation. Nature gives us everything we need to express our creativity: beautiful shapes, colours, textures and sounds. It's a place where anyone can become a true artist - you just have to open your eyes and your heart.

Nature as inspiration

In nature, inspiration is everywhere - in the wings of a mo- tile, the shape of leaves, the shades of the sky at sunset. It's as if nature itself gives us ideas to create. Have you noticed that when you take a walk in the fo- rest, your imagination starts to run at full speed? You can see characters hidden in the bark of the trees, make up stories about animals living in the nocturnes, and even imagine fairytale lands where anything is possible.

> Nature not only inspires us, but also gives us the materials to create!

You can collect leaves, pebbles, twigs, feathers, seashel- ls - all these treasures can become part of your wild art. When we create with natural materials, we feel closer to the earth and the world around us. Creating in harmony with nature makes our creations unique.

We, because each of them tells the story of the place they come from.

Natura Gallery

Imagine not having to go to a museum to admire beautiful works of art. Nature itself is a gallery! Every stone, every leaf, every drop of water is a small work of art created by nature. When you walk in the woods, be like a real artist - look at the world carefully, look for shapes, colours and hidden details. Maybe you spot a heart in the shape of a leaf? Or a face hidden in the bark of a tree? Everything you see can become an inspiration for your own artwork.

How about creating your own outdoor gallery? Arrange stones in the shape of animals, build a sculpture from branches and leaves, create a natural painting on the ground from moss and flowers. Your wild art can be part of nature, you don't need paints or canvas. Instead, use what you find around you. When you've finished, leave your work in nature - maybe someone else will discover it on a walk and marvel at your creation?

Creation in Nature

Have you noticed that when you are outdoors, creation comes easier to you? That's because in nature our body and mind feel at ease. The fresh air, the birds singing, the smell of the forest - all this makes our imagination come alive. In nature, we are free and can create without limits. Whether drawing on sand, building castles out of sticks or painting on stones - anything is possible.

When you create in nature, you can be sure that each

of your works will be unique. You can create a beautiful mandala of colourful leaves or make a figurine out of mud. You don't have to worry about whether something will be ‚perfect' - there are no perfect shapes in nature, and every little mistake becomes part of your creation. To create in harmony with nature is to discover that art is everywhere - not only on a piece of paper, but also in stones, tree bark and the sun's rays.

Art that teaches

By creating in nature, we learn not only to be creative, but also to respect the world around us. Collecting na- tural materials for our creations reminds us how important it is to care for the environment. When we see the beauty of nature, we become more aware of how precious the plants, animals and landscapes around us are. Two by taking care of nature - it's our way of showing that we are nature's friends.

Every child can be an artist! Whether you draw on the ground with a stick or create sculptures out of rocks - your creations matter. What you create is part of a bigger picture - a picture of nature, to which we are

Remember that nature is always waiting to inspire you for your next creative adventure.

FORESTRY TASK 1

Building a fairy forest house

WHAT WE WILL NEED:

- [ ] **Go for a walk in the woods,** during your walk collect feathers, twigs, pebbles, fallen leaves - anything that catches your eye.

HOW TO DO IT:

At the end of your walk, find a comfortable spot and create a do- mek for fairies or other forest creatures. Build a building out of the biggest branches and decorate it with your treasures. You can do this activity with friends; everyone can build their own little building and in this way you will create a fairy village.

Finally, watch together and tell each other about what you have created.

INSPIRATION 14

COOPERATION IN KIND

Relationships between species without which the world would not exist.

A dose of knowledge:

Nature is one big place full of cooperation. Although we often think that animals and plants act independently of each other, in reality many organisms work closely together to survive and grow. This cooperation is the key to keeping nature in balance. It is as if all the inhabitants of nature form one big team, in which everyone has a role to play.

Ants and Aphids

helpers in the garden

Ants and aphids are an amazing example of cooperation in nature. Although aphids are pests to plants, ants treat them as their ‚breeding'. Aphids secrete a sweet liquid called honeydew, which is a delicacy for ants. In return for this delicacy, the ants protect the aphids from other predators, such as ladybirds, and move them to young plants where they can continue to feed on the plant sap. Although it may seem strange, such cooperation between insects helps to maintain a balance in nature.

Bees and Flowers

unusual relationship

One of the best-known examples of cooperation in nature is the relationship between bees and flowers. Bees collect nectar from flowers, which is food for them. In return for this valuable food, the bees They help the flowers with pollination. When a bee sits on a flower, pollen attaches to its body and is then transferred to other flowers, allowing them to reproduce and create seeds. This cooperation is extremely important for nature - without bees, many plants would not be able to reproduce and our world would be much poorer in vegetation.

Mushrooms and Trees

mysterious underground network

In the forest, underground, there is a fascinating system of co-working between fungi and trees, called mycorrhiza. The fungi connect their roots to the roots of the trees and form a network of underground connections. This allows the trees to better absorb the water and nutrients from the soil that the fungi provide them with. In return, the trees share with the fungi the products of photosynthesis, i.e. the cu- cras that are formed in their leaves. It is as if trees and fungi feed and support each other. This subterranean communication system is extremely complex and scientists are only just beginning to discover it!

Wolves and Deer

natural balance

In Polish forests we can also find incredible examples of cooperation in nature. Wolves and deer, although at first sight they seem to be opponents, are part of a larger ecosystem that is based on balance. Wolves hunt deer, which helps controll their populations and pre-

vents over-eating of plants. This allows the forests to regenerate and gives other plant species a chance to grow. Wolves, by re- gulating deer numbers, help maintain the health of the forest, which affects the entire ecosystem.

Birds and Buffaloes

natural cleaners

An interesting phenomenon can be seen on the African savannah - birds perched on the backs of buffaloes. These birds, known as buffaloes, help the buffaloes by cleaning their skin of insects that might bite them. For the birds, it's a tasty meal, and for the buffaloes, it's a relief from the annoying parasites. This is an excellent example of co-working where both parties benefit.

> Cooperation in nature is not just about animals and plants - we humans are part of this system too.

Understanding how the connections between different organisms work allows us to take better care of nature. We can plant trees to house birds, protect the bees that pollinate flowers, or create gardens that become habitats for many animals. When we support nature, it reciprocates by giving us cleaner air, healthy soil and a diversity of life all around us.

How can children cooperate with Nature?

Children can play an important role in this cooperation with the na- ture. Each of us can help, even in the smallest activities. We can:

- **Plant plants and trees** that will become homes for insects and birds.
- **Create insect houses** to protect bees and other beneficial creatures
- **Help clean up green spaces** so that animals and plants have clean and safe places to live.
- **Learn about the different species of animals and plants** to better understand their needs and maintain an equilibrium in nature.

Every step, even the smallest one, is part of a larger cooperation that allows nature to flourish and grow in a healthy way. By supporting nature, children become its true friends and protectors.

FORESTRY TASK 1

Mini bird feeder

Birds and the forest are also an example of beautiful cooperation. You can become a little helper for the birds in winter.

WHAT WE WILL NEED:

- [ ] cone
- [ ] peanut butter
- [ ] birdseed
- [ ] twine

HOW TO DO IT:

Tie a string around the cone so that you can later attach it to one of the branches of the tree. Then spread peanut butter on the cone and coat it with seeds. Hang the finished mini feeder on the tree. You can make several pieces. Ideally, you should hang them regularly on the tree in the same place.

INSPIRACJA 15

A TOUCH OF NATURE - GROUNDING

Connection to nature as physical experience

A dose of knowledge:

ABOUT GROUNDING

Have you ever run barefoot on the grass, felt the cool sand under your feet or sat on the ground in the forest? These are the moments when your body connects with nature. Such contact with the earth is called grounding. It is more than just a pleasant feeling - grounding has a positive effect on our health and development.

What is grounding?

Grounding is simply direct contact between our body and the earth. The easiest way to achieve this is by walking barefoot on grass, the beach, or by touching the earth with our bare hands. When our body comes into contact with natural surfaces, such as soil, sand or water, there is an exchange of energy between the earth and our body. The earth has a special electrical charge that can affect our health in a very positive way.

How does grounding affect our development?

Grounding is especially important for children, as it helps them to develop healthily and happily. Here's why- why you should spend time barefoot in nature:

1. **Physical development** – When you run barefoot on different surfaces, your muscles and joints work better. Your feet learn to move naturally and your body becomes stronger and more agile. Children who spend more time outdoors and have contact with the ground often develop faster in terms of movement.
2. **Stronger immunity** – Direct contact with the earth can support our immune system. Children who spend time outdoors are less likely to get sick because nature helps them build stronger immunity.
3. **Calmer sleep** – When children are in contact with na- ture, their body calms down and this helps them sleep better. And sleep is very important for development - when you sleep, your brain learns and regenerates and your body grows!

The impact of earthing on human life

> Grounding not only helps children but is also beneficial for everyone – adults, young people, and even the elderly!

Here's how it can affect your life:

1. **Stress reduction**
   When you touch the earth, your body can relax better. The earth has this power to help us calm down and feel calmer. It acts a bit like a magic button that turns off stress. When you spend time outdoors, in the woods or in a meadow, you feel more relaxed and happier.
2. **Improving concentration and well-being**
   Contact with nature helps you think better and improves your concentration. When you spend time in nature, your brain can relax and you can focus more easily on lessons or play. It's also a great way to boost your mood - a walk in the woods or sitting on the grass can cheer you up even on the worst day!

3. **Natural energy**
   Have you noticed that you feel full of energy after a day outdoors? This is because the earth provides us with natural energy. By touching the earth, our body regains its balance and becomes more vital.

How can we ground ourselves?

Grounding is easy and you can do it almost every day! Here are some ideas of how you can ground yourself throughout the day:

- **Walking barefoot** – On the grass, the beach, the forest or even in the backyard. Walking barefoot is a natural way to connect with the earth.
- **Lying on the ground** – You can lie down on a blanket in the park or directly on the grass. Try to close your eyes and feel the ground beneath you.
- **Touching plants** – When you hug trees, touch flowers or work in the garden, your body also gets grounded.
- **Playing in the dirt** – Digging in the sand, playing in the mud or building sandcastles is a great way to get in touch with nature!

FORESTRY TASK 1

Let's get back to nature!

WHAT WE WILL NEED:

- ☐ **forest litter or grass** in your school garden

HOW TO DO IT:

Go outside, preferably into the woods or somewhere else where you are sure the ground is not contaminated with rubbish or animal faeces. Just take off your shoes and socks, and stand barefoot on the ground. Standing barefoot, feel, notice with your senses what the ground is like - does it feel good? Close your eyes, redirect all your attention to your feet, as if they were there.

Your eyes, ears, nose, sense of taste and touch. After a few moments, take a few slow steps, feel how the grass or moss bends under your feet. Check how, your feet feel other types of ground

Do you feel connected to nature?

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