Layers of the Forest

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Forest education module 1

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SABUKO
Society for Nature Conservation

გერმანიის თანამშრომლობა
DEUTSCHE ZUSAMMENARBEIT

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თბილისის მერია

Layers of the forest

Required time:	≈ 2 1/2 hours
Material needed:	pictures of forest animals
	1 peg per child
	small cardboard cards, double-sided tape or glue sticks
	4 x DIN à 3 cardboard
	glue
	Nuts or oaks, 5 - 10 per child
	Small mirror, half as much as children
	Graph showing the forest layers (front page for example)

Relevance in context to the curriculum

- Realize the relevance of forests for humans and animals
- Define the different layers of forests
- Describe adaptation of animals and plants to their habitat
- Describe organisms in their habitat
- Show connectivity between different forms of life
- Recognize environmental impacts

BACKGROUND INFORMATION

Close-to-nature forests are like a multistory building. The basement is the area of the roots. Here live organisms which break down dead plant material into new soil. The moss layer consists of mosses, mushrooms, and dead leaves. Ants, bugs and spiders find food here. In combination this two layers are often referred to as forest floor layer.

The next floor is the herb layer. Here someone finds grasses, ferns, and herbs. The shrub layer is characterized by woody vegetation that grows relatively close to the ground. They consist of young trees, bushes, and brambles. Wild boar and roe deer are happy here. The understory of a forest consists of immature trees and small trees that are shorter than the main canopy level of

the tree. The roof is the canopy layer, where the crowns of most of the forest's trees meet and form a thick layer. Those branches are home to most insects, to birds and squirrels.

Forest floor layer

Under the surface are the roots of trees and other plants, over which they extract water and nutritions from the soil. In addition they are relevant to stabilize the plants. This layer is habitat for many animal species. Not only earthworms and centipedes live here. Mice, badger, or foxes also have their ‚home' here. Decomposers, like bacteria and fungi, live here as well. They break down dead material into new soil. Therefor this layer is very rich with nutritions. An other very important function of forest soil is the ability to store and filter water!

Herb layer

The herb layer is habitat for many animals, like beetles, snails, butterflies, bees and hedge hock. In very dense forests, where light hardly reaches the forest floor, this layer may only exist in springtime. This layer is as well highly popular for humans. Strawberries and many edible or medical herbs can be found here, as well as mushrooms.

Shrub layer

The shrub layer is mainly developed at the forest edge, or where the density of trees allows the sun to reach the lower stories. Here grows bramble and elder, for example. They provide perfect nesting and roosting places for birds. And many animals feed on the berries.

Canopy layer

The canopy layer forms the roof of the forest. It provides habitat for many animals as well. Often you can find raptors here. Most Woodpeckers usually prefer this layer as well as tree Martens, squirrels and many, many insects, which are often necessary for the pollination. The leaves in this area filter the air. The process of photosynthesis here, in which carbon dioxide (CO_2) is committed and oxygen (O_2) is produced, plays an important role for the regional climate.

Forest have their very own micro climate, in which it is usually a few degrees cooler than in the surroundings.

Jay

Length: 34 - 35 cm

Wingspan: 52 - 58 cm

They are the most colourful members of the crow family, with a reddish-brown body and their most distinguished blue elements in the black and white wings.

They mostly life in deciduous and mixed forests. This includes parks wich are characterized by a lot of trees. They are in Sakartvelo all year round. Jays are famous for their acorn feeding habits and in the autumn you may see them burying acorns for retrieving later in the winter. Besides nuts, they eat berries, insects, larvae, eggs and hatchlings of other birds. Unlike squirrels, they are able to remember more than 1.000 different storages. And they can imitate the voices of other bird species.

PREPARATION

AT SCHOOL

Prepare the children for the visit of the forest. Discuss:

- Who has been in a forest before?
- What did you do there?
- Which animals live in the forest?
- How do we behave in a forest?

MATERIAL FOR THE GAME „WHO AM I“

Depending on the number of children, select an equal number of animals for each layer.

Recommendations for the categorization of animals:

Forest Floor Layer: mole, European toad, earth worm, ant, forest mouse, fox, badger, dung beetle

Herb Layer: hedgehock, hare, tick, wild boar, ladybug, Roman snail, bumblebee,

Shrub Layer: cross spider, blackbird, roe deer, wren, wolf, tree frog, tits

Canopy Layer: dormouse, bat, raven, common buzzard, jay, owl, pine marten, great spotted woodpecker, nuthatch, black woodpecker, squirrel

FOR „WHAT IS GROWING HERE“

Preparer small cardboard cards (about 2 x 6 cm) according to the number of children. Prepare them with double sided tape or have glue sticks available on the side.

FOR THE GAME „OWLS AND CROWS“

Prepare a number of correct and wrong statements related to the informations you are covering in your session.

WHAT TO BRING

Make sure everyone knows how to dress and what to bring!

Everyone should be dressed according to weather. This can be, protection against cold, wind or rain, head cover, sun screen.

It is highly recommended to wear long trousers, as high grasses can be very itchy and spiky plants are very annoying. For the same reason it is preferred to wear closed shoes.

Everyone should bring their own drinking water. Preferable in a reusable bottle. Everyone should have a light snack. It should be made clear, that no trash is left behind!

Have the children bring their notebooks and pencils.

Make sure you have all the materials ready with you, which you may need for your activities.

If it is not anyway mandatory from your school, make sure you have basic first aid with you. At least a small bottle of disinfectant and bandaids.

Have your phone charged and ready with relevant contact numbers.

Topic introduction and sensibilisation

Where do the animal of the forest live?

Overall time required for the introduction period: 20 minutes

You have talked about animals already at school. They will easily be able to name some, which live in the forest. It is an easy start into conversation, as most children like animals. But, where do they live? Some live in the soil, others on top of the trees, and some use all forest layers. The bumblebee build her hatchery in the ground and lives in all layers above the ground.

While elaborating the different living places of the animals, your pupils get acquainted with the different layers of the forest. During the different activities they will gain awareness about the multiple layers animals are using.

ANIMALS OF THE FOREST

Group discussion - 5 minutes

If you use the Kus Tba forest interpretation trail, you can use the board about forest layers for visualization. Or you show them a forest layer graph.

- Which animals live in the forest?
- Where do they live?
- Did you know, that the forest has layers? Like houses have different floors?
- …

WHO AM I ?

Game - 15 minutes

Diversity of forest animals gets introduced.

Every child gets an animal picture attached to its back. While asking a partner questions which can only be answered with ‚yes' or ‚no', which animal is shown on their back. Questions have to be about the character of animals. (Do I have fur? Do I have 6 legs? Am I most active at night? …)

If the question is answered wit ‚yes', one additional question is allowed. Than the partner asks a question. Afterwards look for a new partner.

If the question is ‚no', directly change partners.

Those who found out who they are still can be asked questions.

Get to know the forest layers

Part I - Overall time required: 38 minutes

ANIMAL SORTING TO LAYERS

Activity - 5 - 8 minutes

When the children found out who they represent, ask them to place themself at the forest layer they think, those animals live.

You have to indicate the places which present the different layers.

The children will realize, that many animals use more than just one layer. However, there are also animals with clear preferences.

If you need to split your class in smaller groups, this activity could be used. Then you have to pay attention, that you chose an equal number of animal species for all layers.

CHARACTERISTICS OF THE LAYERS

Group discussion and activity - 15 minutes

If your group is very small, let them workout together each layer. If you have split your class in working groups according to the layers, than each group will work on the layer they represent.

Let them discuss, how they can characterize their layer with the materials they find. Now every group has to create their layer on the A3 cardboard which you have handed them out.

The cardboard layers can later be presented at school.

Alternative you can ask them to create the picture on the ground.

Follow up activity - 15 minutes

Each group presents their results. Start with the forest floor and follow according to the layers. Let them add the individual cardboard pictures to one installation.

Part II - Overall time required: 70 minutes

Since the children have been introduced to the forest layer system, they now deepen the topic by following an individual, which is present at all levels to satisfy its needs.

FOREST FLOOR LAYER

Sensory experience

Encourage the children to experience each layer as well with their senses. Are there differences in the layers?

Feel: How does it feel when you touch the leaves, the soil? (Structure, texture)

Smell: How do the leaves, soil, bark smell?

Hear: Can you produce sounds with them?

See: Can you detect any animals?

Group discussion - 3 - 5 minutes

- What for does the jay need the forest floor?
- What does he find on the forest floor? : nesting material (moss, twigs) / food (acorns, insects, larvae, small mice and small amphibians)
- Acorns are stored by burrowing them in the soil. One individual may store up to 3.000 acorns per season. Jays can carry up to 10 acorns in his crop. To clean his feathers he sometimes bathes in ants.

WINTER STORAGE - PART I

Game - 10 minutes

Every child gets about 10 acorns to hide. - If you are out in autumn, let them collect their acorns from the ground.

Part II of this game follows in the tree layer section !

HERB LAYER

Group discussion - 3 - 5 minutes

- What for does the jay need the herb layer?
- In the herb layer he finds insects for food. Here he finds as well caterpillars to feed, to the hatchlings.

WHAT IS GROWING HERE?

Activity - 10 minutes

This will be very different according to season.

- How do plants feel, smell?
- Do you know some of them?
- Are there edible ones?

Hand out the small cards, which you have prepared with double sided tape. Ask the children to add plant parts from the herb layer.

SHRUB LAYER

Group discussion - 3 - 5 minutes

- What for does the jay need the shrub layer?
- The shrub layer often is dense and provides protection against predators. Therefor he uses this layer for the nest. This layer provides additional food in form of berries and again insects. But he finds as well nests of other birds, which he may plunder.

WARNING CRY

Game - 10 minutes

The jay is also called ‚Warner of the forest'. If he detects people, he releases his specific sound, which is like an alarm for other forest animals.

Chose a path along which the children have a chance to hide. Which means, an unstructured area would be helpful. As soon as a chaperone releases the sound of the jay, the children have 10 seconds to hide along a given trail. Now you walk along the trail and look out for the forest animals. Call out the name of the child, when you detect him/her. Can you find them all?

TREE LAYER

Group discussion - 3 - 5 minutes

- What for does the jay need the tree layer?
- The canopy provides protection. From here he has good overview to warn other animals. In spring you may find big groups of young jays hanging out together, chitchatting.

WALK WITH MIRROR

Activity - 10 minutes

Form pairs. Every couple gets a pocket mirror. One player places the mirror on top of the nose, the mirror facing to the sky. The partner carefully guides the person with mirror through the forest. The guiding child has to show responsibility and ensure his /her partner does not get injured.

Switch roles after 3 or 4 minutes.

WINTER STORAGE - PART II

Game - 5 minutes

This is the continuation of the activity, which you have started in ‚forest floor layer'.

„Imagine it is winter now, and the jay is very hungry. Fortunately you have prepared for winter with storages. Do you remember, where you have placed your nuts / acorns?"

Let them bring the nuts. Restrict the time. And than discuss. Was it easy or difficult to find them again? What may happen to those nuts, which they did not find anymore? - They may sprout and an oak tree or hazelnut bush may grow (depending what they placed.)

Farewell from the forest

Overall time: 20 minutes

THE LAYERS OF THE FOREST

Group discussion - 5 minutes

Repeat the functions of each layer.

Was there anything that impressed them most or what they particular liked?

OWLS AND CROWS

Game - 15 minutes

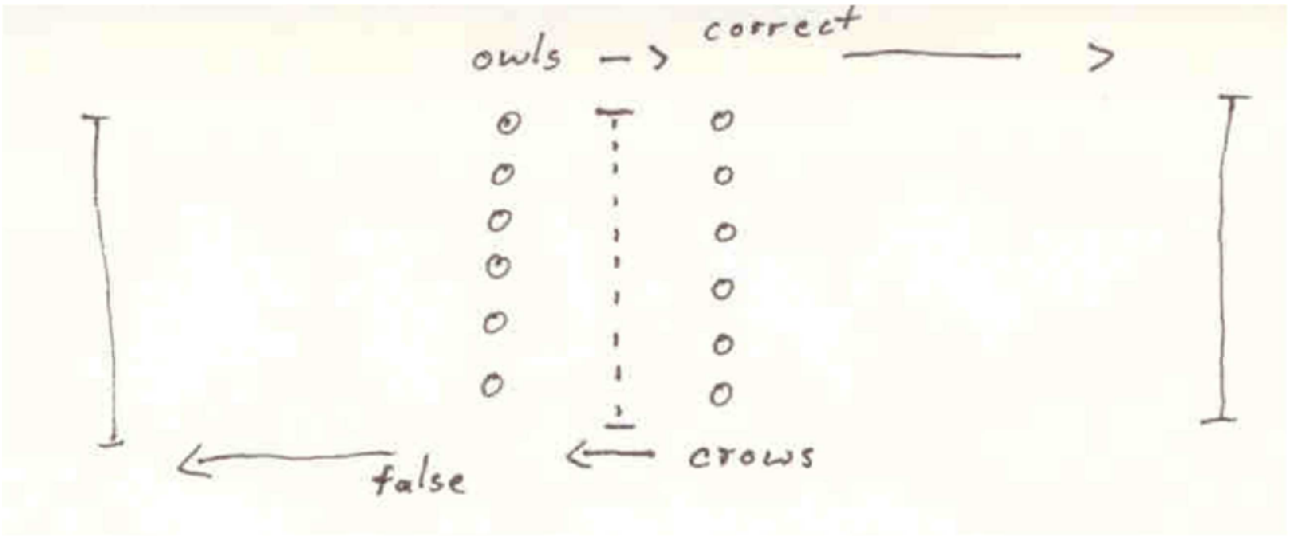
It is strongly recommended to prepare correct and wrong statements beforehand.

Form two groups. Mark a field with a middle line. Each group is placed in a line about 6 steps away from the middle line, facing the other group. About 10 m behind each group an end line has to be marked.

One group are owls. Owls are a symbol for wisdom and stand for the right answer. Crows are said to be cheeky and crafty, they stand for the wrong answers.

You state an argument, for example “Jay only live in the canopies“. As this is a false argument, the crows have to catch the owls. If the argument is correct, the owls have to catch the crows. If a player reaches the end line, he is safe. If a player is caught, she has to join the other group.

It is recommended to have a few test runs with very simple arguments to make clear which group has to run into which direction.



Before you leave the forest,
make sure you collect everything you brought
and take it back with you!

Take all your waste home!
Garbage causes damage to the environment and animals.
By polluting the environment, we harm ourselves.

FOLLOW-UP AT SCHOOL

Let the children talk about their experience in the forest.

Distribute the forest layer collage on the wall.

Reflect the use of the different layers for humans:

- Where does my bed come from? (Tree)
- Who cleans our drinking water? (Soil)
- Who produces oxygen? (Leaves)
- Where do we collect mushrooms? (Forest floor)
- …

At different times of the year, the layers appear different. Repeat the walk and let the children compare. You can easily combine the walk with other joyful, seasonal activities in the forest.

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