

More than 40% of the Alpine area is covered by forests and they have played an important role on an economic, ecological, social and cultural level since centuries, but they are getting under pressure by climate change, deforestation, etc. Let us introduce the unique features and diverse functions of forests to the motivated youngsters and let them appreciate this undervalued multi-talent.

Forests have many tasks. It provides us with wood, fresh air and clean water; is a source for food, herbal plants / medicine; it serves as a carbon sink, protects us from natural hazards (rockfall and avalanches among others); includes a high variety of habitats for animals and plants and is an important place for human recreation. Forests are a distinguishing element of the Alpine landscape and when managed sustainably, they carry out many important functions and contribute to the protection of Alpine landscapes.

(Not all activities are appropriate for all ages, so please adapt the activities accordingly)

ICEBREAKER ACTIVITY

To introduce the theme and help young people get to know each other, each participant introduces himself/ herself (first name, age...). Afterwards we suggest you to have a round where you ask the young participants what do they know about forests, what do they connect with forests? Questions that may help: Are there animals/plants that need the forest/for which the forest is vital?, Are there people for whom the forest is useful? Are there people whose work is related to the forest? With older participants you may even go further and name examples for the four different dimensions (ecological, economic, social and cultural) of the forest. There is no right or wrong answer it should just help to open the eyes and to see the multifunctionality.

1. VIDEO CONTEST

All participating organizations are invited to make a short film and to share it with ALPARC to participate in the first Youth at the Top video contest. The best 5 videos will then be selected by a jury and awarded a prize. To take part in the video contest, please read Appendix 4.



2. FOREST RADIO



Let the participants experience the forest in a different way and listen to the sounds of the forest with their eyes closed. Everyone closes the eyes and is silent, what do we hear in the forest? Youngsters should listen carefully. What sounds do they hear in the forest? Try to be very precise! *Examples: bird twittering, cow bells, wind noise*

Age: 6-25

Topics covered: Perception practice (listening), recognizing sounds of nature

Duration: 15 min.

3. THE FOREST WARNING SYSTEM

The Eurasian jay (*Garrulus glandarius*) is the alarm system of the forest. With his loud calls, he warns the animals of danger.

For this environmental education game, we need a "wanderer", a "jay bird" and many children representing trees. First a "wanderer" is chosen and closes his eyes. Meanwhile the jay stands between the trees and all the trees and the jay are now closing their eyes. The child playing the wanderer must now try to cross the playing field without being noticed by the jay. It does not know which child the jay is and where it stands. If the jay hears the wanderer, he screams loudly. After the third cry or when the wanderer has made it without screams, the roles are changed

Age: 6- 14

Topics covered: Local animals have specific function, sensibilisation

Duration: 15 min.

4. THE GUIDE FOR THE BLIND



Conduct of the activity: The children get together in pairs of two. One gets blindfolded and the other child turns him two to three times so that he loses his orientation (but does not get dizzy). Then take him by the hand and lead him to a tree (make several turns to increase the difficulty). Now the participant has about one minute to get to know the tree to feel the bark, smell the tree; estimate diameter, look for roots and feel them. Then lead the "blind child" back to the start and take off the blindfold. Now the participant has to guess which tree he was at - he may touch, smell and look at all the trees. Can the "blind" now find their tree again? Then it is switched.

Tips: Primary school children should be at least 30 steps away from the starting point, kindergarten children correspondingly less. For primary school students, this environmental education game can be made more difficult by having to turn around blindfolded beforehand so that they cannot determine the direction in which they are led.

Necessary Material: Blindfold

Topics covered: Importance of the other senses (except sight) Awareness, Tree, Diversity

Age: 6- 14

Duration: 15 min

5. BAREFOOT SAFARI

Description: Work with the children to prepare a short route and simply go for it! Encourage descriptive vocabulary of sensations and how the experience makes them feel. Consider having diversions available or a hand to hold over more challenging sections. The route can be made more permanent by removing the upper layer of earth, inlaying that with weed suppressant membrane and then backfilling with the desired loose material. Alternatively, sections of the trail comprising loose parts could be contained with a wooden trim.

Background information: The concept of the barefoot trail can be traced back to a Bavarian priest, Sebastian Kneipp, who believed that walking barefoot in the snow or over dew had therapeutic benefits. There are now many barefoot trails across the Alps as walking barefoot does has many positive beneficials for the health.

-> Always check the trail for hazards before proceeding.

Preparation required: Ideally you identify a short route and incorporate a series of different surfaces. Afterwards you may want to wash your feet So bring a large scrubbing brushes, water and towels at the end to clean up dirty feet!

Topics covered: Mindfulness, Forest (soil) diversity, Sense of balance promote, Health benefits.

Duration: 15 min.

Age: 6 - 25

6. DETECTIVES IN SEARCH OF CLUES

Many of the forest animals are rarely seen. However, they often reveal their presence through a variety of clues. Their footprints or tracks, for example, can be easily seen on soft, damp ground. During your walk, in addition to the tracks, look for the following: Feeding marks on plants around the roots, trunk, twigs, leaves, and fruits such as tree bark eaten by deer gnawed spruce cones of woodpeckers or the hazelnut shells broken open by mice and squirrels.

Don't forget to show the children some feeding marks and footsteps of various animals outside. Then the children go looking for themselves. Don't touch feathers and other "leftovers."

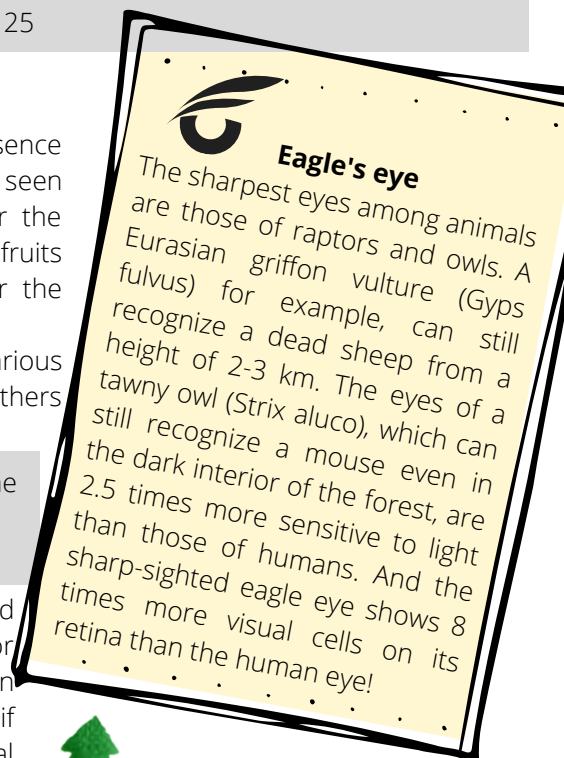
→ Check p. 5-6 for more material!

Topics covered: insight into the way of life local animals, Tracks, sharpen the eye's, adjust the eyes to a specific search and learn how to behave responsibly.

Age: 6- 25

Duration: 30 min

Tip: For this activity the young participants will roam through the forest. To avoid disturbance of wild animals, please avoid game refuges. Just use a small area for tracking, already used by humans and therefore "deer-free" during the day as in summer the disturbance of young animals and breeding birds is far too great. if an animal is startled: become calm immediately, stand still, and give the animal time to move away. As YAT is linked to an overnight stay in a hut you may also take them to a place to observe some animals.

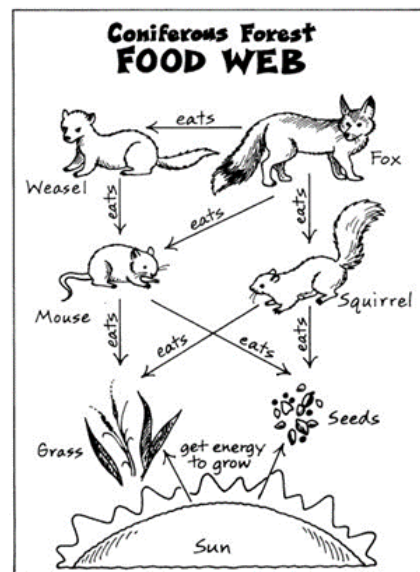


7. THE IMPORTANCE OF BIODIVERSITY

More than almost any other place, the forest provides a habitat and survival area for many plants, fungi and animals. Many species are highly specialized and, for example, only feed on a particular plant. A specific plant or forest can be an indicator for the occurrence of a specific species. For example, wild boars and jays like Oak trees (Quercus). The climate-related loss of a plant on which certain animals or fungi depend can also threaten their existence.

Activity: The participants form a circle. The leader stands in the circle, close to the edge, with a ball of string in his hand: "Who can name an animal that lives on the forest floor?... earthworm... Here, Mr. Earthworm, hold the beginning of the string. Does anyone know an animal that eats the earthworm?... Hedgehog... Oh, what a sumptuous meal. Master Hedgehog, you touch the string here, you are connected to Mr. Earthworm, because you're eating him for dinner. Well, and who needs the master Hedgehog for his dinner?"

As the participants are thus connected to the string, it becomes clear that they are all interrelated and depend on each other. You can bring other elements into play, e.g. other animals, trees, earth, sun and so on, until everyone in the circle is interwoven in a symbolic web of life. Now the group has created its own ecosystem.



Material: long rope/twine, slips of paper to write down the role of each player

Topics covered: Local flora, biodiversity, Become aware of the interdependence of all parts of nature. Highlight interventions in the ecological balance.

Duration: 30 min

Age: 6-25

8. IDENTIFICATION OF PLANTS AND TREES

→ Check p. 7 for more material!

In the Alps, the tree line lies generally between 1'800 and 2'200 meters above sea level. Up to 1'400 meters forms mountain mixed forest with the main species spruce, fir and beech. In the southern parts also oak species and the sweet chestnut may occur. The higher you get, the more spruce you encounter: It is well adapted to the harsh mountain climate and the short growing season. Above about 1,500 meters, the natural mountain forest consists mainly of spruce, individual sycamore maple trees, larches and rowan berries.

Activity: For about 10 minutes, the youngsters go on the hunt for plants, leaves, fruits of trees and herbs. You can either collect the things, take a picture with your mobile, or may use yarn to mark their findings. Afterwards you go back into the group and present what you found and try to identify them jointly.

In the past plants, herbs and mushrooms have been identified with books, but today there are many applications that can help you identifying them. *Important: Collecting plants is prohibited in certain protected areas. Please always check in advance if it's allowed to collect plants in the area you go.*

Necessary Material: Yarn and a scissor

Topics covered: Local flora, biodiversity, protected plants, medical plants,

Duration: 15 min.

Age: 6 - 25

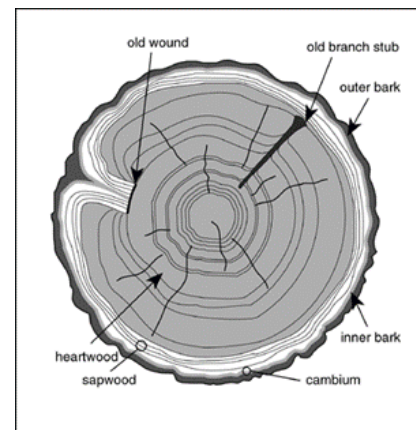
To go further: Also for people, the forests are known for its healing powers and they are full of nutritious wild herbs and berries. The list of wild herbs is very long. If you intend to collect herbs, one of the most important rules is that you should only collect what you really know. Be very careful as some herbs can easily be confused with poisonous, similar-looking plants. In order to collect herbs sustainably, one should never tear them off by the root, but carefully cut them off with a knife or scissors.

9. HOW OLD IS A TREE?

If you have a tree cookie or find a tree trunk, have the children count the annual/growth rings to determine the age of a tree. The annual rings reveal even more! Narrow rings, for example, indicate that the growing conditions of the tree conditions were not so good and it was too cold or too dry. Wide rings, on the other hand, indicate optimal conditions, such as sufficient light conditions, sufficient moisture in the soil, good nutrient conditions, etc. Oval rings with growth at different rates indicate that the tree has stood on a slope or has been exposed to strong wind from one side.

But how do the annual rings come about?

This is due to the different growth of the trees in summer and winter. In spring, when the growing season begins, the growth layer of the tree (cambium) forms large cells, which cause the wood portion to grow (early wood). Towards autumn, when the growing season ends, these cells become smaller (late wood) until the tree stops growing completely. A tree ring therefore always consists of a wider, lighter spring ring and a narrower, darker autumn ring.



Aim: Recognize that environmental influences affect the growth of trees, and the importance of tree rings for climate researchers and climate history

Material: Tree cookie or tree trunk

Duration: 30 min.

Age: 6 - 25

10. MAKE YOUR CAMPFIRE

For centuries, humans have been using the renewable resource wood in many different ways. Whether as a building material, paper raw material or energy source wood and wood products are still omnipresent in our lives. To experience it, let's build a campfire.

-> Keep the fire small and under control! The safest way is to use an already established fireplace in the vicinity. It is essential to avoid fire on unprotected ground in the middle.



Extra: When the fire is lit you can make some "campfires breads on a stick". The dough has to be prepared in advance. Just grab a piece of dough (not too thick) and skew it on the stick. Yummy! 😊

Equipment: Source of water (e.g. in a bucket), shovel, wood (tinder, kindling, fuel), match or lighter



youth
at the Top

11. SUSTAINABILITY - RESOURCE FOREST

FORESTS MAKE THE PLANET A HEALTHIER PLACE TO LIVE! Without Forests there is no air to breathe.

- Forests regulate the water balance, improve the air quality and regional climate: Forests filter dust and pollutants from the air, produce oxygen and have a balancing effect on the climate; Forest contributes to the climate as a CO₂ sink.
- Regulate the climate: Forests influence the climate on a small and large scale, mainly by influencing the water cycle, as well as the reflection of solar energy, wind and the carbon cycle - forests are important carbon stores.
- Water storage and filtration: trees and forest soil retain precipitation and filter water. In this way, they contribute to flood protection and the formation of clean groundwater.

Little activity: Hike for 5 minutes in the shade and 5 minutes in an open space in the sun – you will immediately notice the different climate during a quick walk in the forest.

Activity: Calculate My personal CO₂ Emission/year

Task I - Determination of the log Volume

1. Select a tree and calculate its log volume.

$$V = \pi/4 \times \text{BHD}^2 \times h \times f = \underline{\hspace{2cm}}$$

Ex: Spruce 25m high; 30cm BHD= $3,14/4 \times 0,30\text{m}^2 \times 25\text{m} \times 0,45 = 0,79 \text{ m}^3$

Instructions for measuring the height of the tree

1. Take the wooden stick and choose a tree to measure.
2. Hold the stick vertically in front of you with your arm outstretched so that your fist is at eye level and the length of the stick above your fist is approximately the length of the tree. The length of the stick above your fist is approximately the length of your arm.
3. Point the stick at the tree you want to measure. Now you have to move forward until the lower end of the stick coincides with the base of the trunk and the upper end with the top of the tree.
4. When this is the case, walk the distance to the tree with steps of about 1 m. Measure beforehand how long a meter is. For example, if it is 15 steps to the tree, the tree is about 15 m high.

Task II - My own ecological footprint

1. Calculate the amount of CO₂ your tree has stored in its lifetime.

The total CO₂ storage of a tree is calculated from its volume and its wood density. For our native tree species, the value is about 0.9 tons of CO₂ per cubic meter of fresh wood.

_____ Tons of CO₂ stored by my tree = total storage of trunk wood

_____ total storage = total storage of trunk wood * 1.4 surcharge for branches/roots

_____ Tons of CO₂ stored by the tree on average each year (total storage / age of tree)

2. Calculate your own CO₂ emissions per year using the information on the next page:

_____ Tons of CO₂ per year

3. How many trees offset your annual CO₂ emissions?

_____ Trees

Base emission (household) All values in metric tons of CO₂ per year

Persons in the household					
Living Space	1	2	3	4	5
1 bedroom	6,9	6,1	5,9	5,8	5,7
2-3 bedrooms	7,9	6,6	6,2	6,0	5,9
3-4 bedrooms	9,1	7,2	6,6	6,3	6,1
4-5 bedrooms	10,6	8,0	7,1	6,7	6,4
Individual house	12,4	8,9	7,7	7,1	6,8
> big house	14,9	10,1	8,5	7,7	7,3

Your Emission (see table)

Do you consume green electricity?		-1,0
I go to school / university / work	By bus, train, car	+1,0
	By foot	0,0
Vehicles in the Family	Per car / motorbike	+1,3
My preferred means of transport, which I use every day. For example, to get to school.	Car	+0,2
	Public Transport	+0,1
	Bike	+0,0
Flight per year	Europe	+1,0
	Asia / Africa / North America	+5,0
	South America / Australia	+9,0
I eat	Vegetarian / Organic agriculture	+0,1
	Mainly vegetarian and max. 1x per week meat or sausage	+1,2
	Daily meat/ Sausage	+1,8
	Very much meat and sausage without regard to season or origin	+3,0
Total (My personal CO₂ emissions in tons per year)		

V = volume [m³]

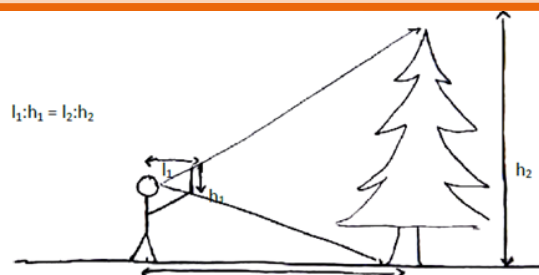
BHD = diameter of breast height*(at a height of 1.30m) in cm

h = height [m] with the "walking stick method"

f = shape number [without unit] to be taken from below

Shape numbers of common tree species:

Spruce: 0.45 beech: 0,50 oak: 0,53 Pine: 0.42



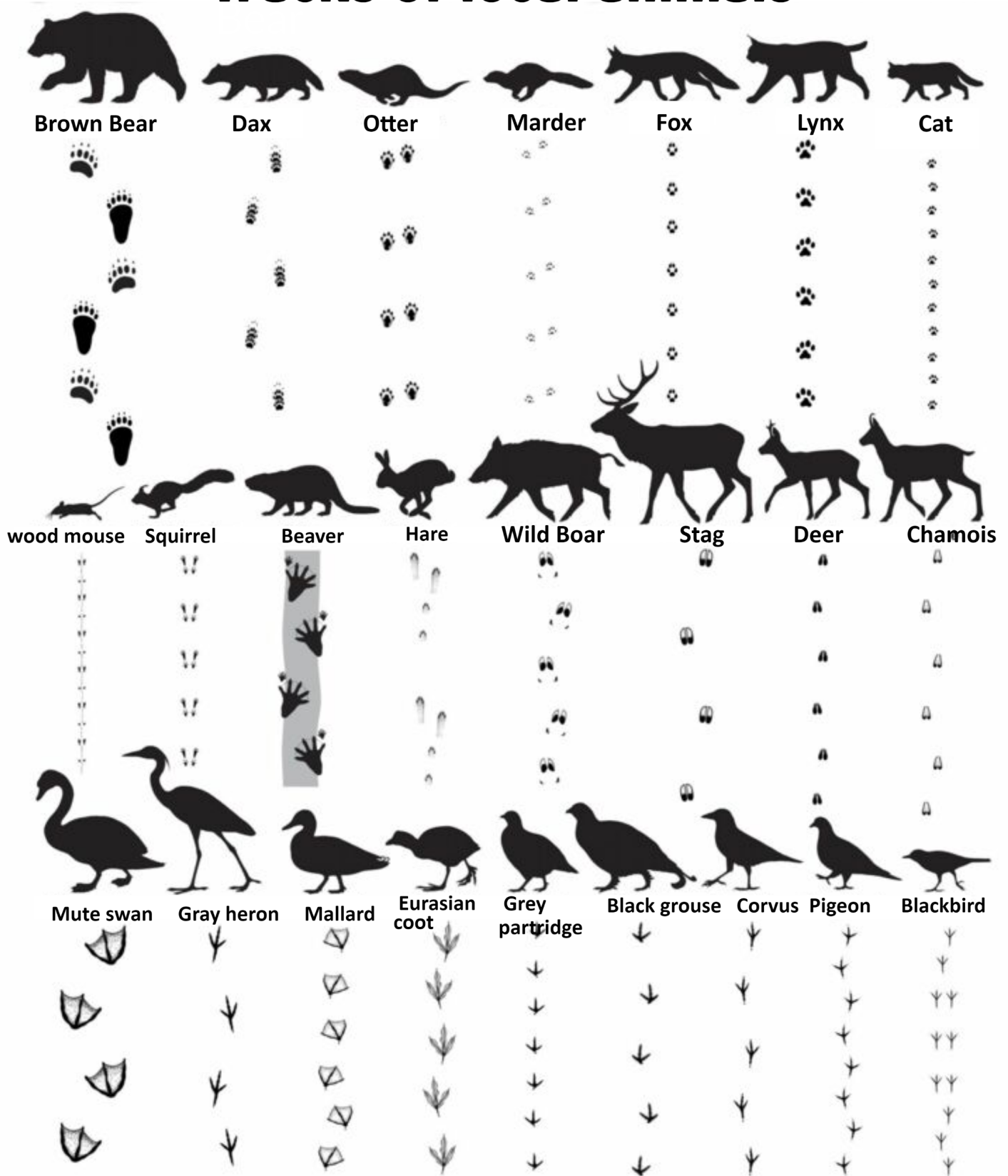
Material: Pen, Calculator, Walking stick (60 cm), Measuring tape

Topics covered: Forest as a carbon sink, Climate Change, Co₂ Emission

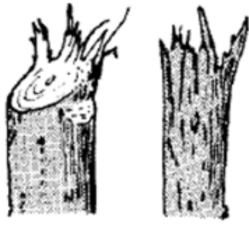
Duration: 20 min

Age 12- 25

Who is it ? Tracks of local animals



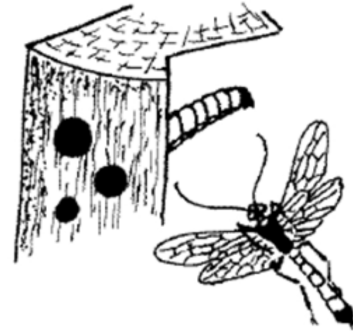
Feeding traces in the root and trunk area



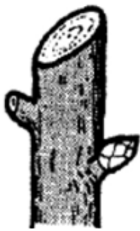
browsing by deer
and red deer



Bank vole
Rodents



browsing by deer
and red deer



browsing of brown
hares



Longhorn beetle
(Cerambycidae)



Eating marks are sharply cut
double row of rodent teeth
can be seen. Rodents like
hare squirrel

















Bark beetle



Root piece gnawed
by a ground mouse

SUPPLY MATERIAL

8.IDENTIFICATION OF SPLANTS AND TREES

			
			
			<p>Name the leaf and the fruit of the tree together:</p> <p>A) Beech B) Oak C) Birch D) Larch E) Pine F) Spruce fir G) White fir</p>
			

Sources:

- https://www.bildungsserver-wald.de/bildungsmaterial?tx_kesearch_pi1%5Bpage%5D=3&cHash=2db1659b78f627c5847f3e79cbe8ad53
- <https://www.waldkulturerbe.de/>
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- From: Cornell, Joseph: Experience nature with Cornell. Publisher at the Ruhr, Mülheim an der Ruhr 2006, p. 108f.
- <https://www.education.com/science-fair/article/food-chains/?epik=dj0yJnU9ZG1LWIRXdlBhNHVVYnVYNGl2bTlmVkNabnZnbERqYXUmcD0wJm49UU52Z1dhMGdNQXZ1V1JmSGFkaFJ1QSZ0PUFBQUFBR1FyLU1J>
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