LESSON PLANS FOR EDUCATORS

LEHUA project - Learning Humanity from Animals

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LEHUA

Learning Humanity from Animals

IMPRESSUM

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Table of contents

The aim of this reference book

To empathy, and to the acceptation of others it is inevitable for us to be able to face our fears, acknowledge our emotions, and that we see the world in a fundamentally positive way – in other words, we should have emotional intelligence: we should realize others' and our own feelings as well, thus we could act appropriately with being aware of these feelings. As a conclusion of these, the best we can do is to help teenagers and young adults to be able to understand themselves, their feelings and emotions better. The Lehua – Learning Humanity from Animals – project offers opportunity to this. In the focus of our activity stands the human-animal interaction. With the help of the training created during the project and the related training materials we are searching for the solution, how our relationship with animals and nature contributes to the development of our intra- and interpersonal skills, empathy, resilience and coping skills.

The major aim is to reach the group of educators, social workers, youth leaders, so every professionals who are working with people between the age of 13 and 29, whether they are working in a formal or in an informal environment. We create our intellectual materials for them, thus they can adopt a method with holistic approach of human-animal interaction into their everyday work resources:

A collection of exercises (a list of tried and working tasks)

The draft of the training that consists of seven modules

Detailed draft for lessons of some modules

An exercise book handed to those taking part on the course

The construction of the reference book

The reference book consists of two main parts. Firstly, you can read about the tasks of the trainer and the possible challenges that can occur during the training in general, it offers solutions, which help by solving the problems. This is how it would like to show the basics for those, who have just started working as a trainer. After the general review comes the concrete introduction of the Learning Humanity from Animals program. The reference book introduces the modules of the training included certain exercises and games in the planned order. The descriptions of the construction of the modules are concluded shortly and then are the exercises explained according to the following:

- Introduction of the module
- Aim of the module
- Duration of the module
- Topics to elaborate
- The detailed process of the courses
- Detailed description of the exercises
- Needed time, group number, age, equipment, preparation
- Description of the exercise

- Varieties
- Experiences and difficulties
- Knowledge, which is needed to the modules related to certain topics (certain species, biological expressions and information, etc.)
- Other (useful information, webpages, comments)

Task of the trainer

The aim of the training is somehow always the learning and development through collective activities, exercises and adventures. Although the trainer has increased amount of responsibilities during the training (creating the group and keeping it; being aware of the processes in the group; dealing with the caused emotions, etc.), the training is still based on the highlighted strength and responsibility of the group: everyone is equal, and everyone forms the group. To the appropriate efficiency of the training is it inevitable to create a trusty atmosphere and also keeping it. Thus, creating and protecting the emotional security is always the trainer's main responsibility. It is very important that the conditions of the basis of common work would be presented:

Participation in the training/exercises is voluntary – everyone has to have opportunity to participate in a depth that is acceptable for them

Since all participants' opinion and comment is equally important, make sure that everyone is listened to if they have something to add without justice

All participants should fulfil their own needs – all of them should have opportunity for expressing their needs and asking for help

Being a trainer is complex, and has more levels, thus we would like to advise the dual leadership, that the trainings and the modules would be led by two different people parallel. In this case sharing the tasks and responsibility is possible, because monitoring three different levels is difficult to do alone:

The concrete leading and making the whole progress real. Holding ourselves to the time and the borders of the game. The execution of the aim of the training. (What is the point in my exercise? If my aim is to develop communication skills, can I see that they are improving their skills right now? Do the tasks have the same effect I planned? Do I have to change something in the process? Is there any exercise that worth rather more or less time?)

Group dynamics. Level of the cooperation of the group and their emotions/mood. The basis of group dynamics is that the group is more than a collection of people. Due to the atmosphere, the individual behaviour changes, members influence each other. People in the group start interactions, create relationships, communicate, cooperate, or they start competing that leads to the change of the group or even the individual. (How does the group work? What amount of emotion and efficiency is present in the cooperation? What is the formed group norm? Beyond making the exercises real, what are the important processes in the group? What kind of disagreements are there in the group? Can the members feel any conflict?)

Emotional situation and mood of the participants. The games and exercises, the amount of time spent together, and the commonly lived experiences have different effect on each member. The quantity of participation, attention and feelings can move on a wide scale. (How do the

participants feel about the exercises? Are there any of them, who has intensive positive/negative feelings? Does any of them need increased attention or help?)

To be able to follow the level of the function of the group and the individual feelings with attention, we would like to offer more aspects, which can help by analyzation:

Aspects of group dynamics and conflict resolution – to follow the group work

Self-reflection, questions that help processing the feelings – to follow the emotions and mood of certain people, and supporting their self-knowledge process

The summaries from the field of business and being a head-teacher bring some examples and use the following resources:

Borvák Mária, Hodossy Katalin, Molnár Kriszta, Rabec István: A pulzáló iskola. Útmutató közösségi iskolák működtetéséhez. Budapest, 2013.

Molnár Kriszta és kol.: Az élet játék 2. Módszertani kézikönyv osztályfőnökök részére. Komárom, 2014.

Suhajda Éva Virág, PhD: Pedagógus mestervizsgára felkészítő jegyzet. MKIK. Budapest, 2017.

Basics of group dynamics

Fundamental characteristics of a group

A group is always founded because of a reason, which is obvious for its members. These reasons could be for example: learning, development, completing a task or a project. These are called HARD processes. Next to the hard processes, there are also the SOFT ones, which we have just realized. This consists of the quality and quantity of the interaction between the members, the group's culture or the communication's type.

Soft processes can either help or block the run of the hard process (e.g.: learning). That is why it is so important that a capable leader can help by the formation of the soft processes. Keeping these in hand and being able to handle personal and in-group relations appropriately helps in the effectiveness of learning, development and work.

Levels of group dynamics

Orientation level (getting to know each other)

The characteristics of this beginning period consist of a behaviour according to loose social relation norms, some kind of insecurity, searching for place and getting to know each other. The role of the leader is significant, the members try to accept him/her without argumentation as the only person responsible for the security and order. This also means the formation of a kind of dependence from the leader until a trusty atmosphere sets. Here will the leader role be extremely important, since he/she can lay the foundation of a successful working progress at this period.

The intention for security is part of discussing the borders. Here are connected the discussions related to time and space, and also agreements on the fundamental rules and the goal of the group. Creating a secure and trusty feeling is one of the most important stations of setting an

example as a leader, others are finding out the fears of the members, making it transparent, broadening the information about each other, more personal relations beyond the fundamental knowledge. This makes stepping to the next level possible.

Fighting for the roles (storming)

The bigger the security, the more feelings turn up. That is why finding the roles and competitions between the members start in this period. At this time are the smaller groups and unions within the big group formed. This frustration in the beginning is followed by a tendency for peace, which leads from finding the differences to finding the common characteristics, people will re-evaluate the things that turned up in the argument, thus acceptance will born.

If we re-evaluate these conflicts, this period of formation, we should be really grateful, because all of the stress that was felt at first holds huge energy in itself that could be built in the group processes and can lead to a possibility of stepping forward. At the end of this period roles will be in order, everyone will know his/her place, thus the group could step to the next phase.

Consolidation period

Fighting the rivalisational fights (and getting exhausted in it emotionally), the group will find its inner balance. The construction of the group becomes solid step by step in connection with relationships and emotional interactions. Rules will be formed included cooperation and roles of the members. Participants are more loose because of the security given by the norms, their activities are increasing, and they express more and more personal information. Trust within the group also increases. Norms are established, working methods are worked out, and the efficiency of the group is perhaps repaired with trying new forms. Members face the problems and try to solve them – not only in the hard, but in the soft levels too. A kind of dependence is formed towards the other members, the group and its goals. The leader's task is more and more convenient, his/her earlier behaviour already sets an example for forming norms and consolidation. It is advised to go back to the background and to use the independence of the group, and interrupting the processes only when there is a crisis in the cycle of development, focusing on the critical situation. Treasure and let the increasing amount of independence of the group.

Creative period

The group is working on their goal joyfully, on the one hand, they are successful in managing the hard processes and on the other hand, they live their cooperation very well. The group gains great experience in fighting with problems, and in using their skills and own resources. They try to observe problems down-to-earth and solve them creatively. Leader functions are shared between the member according to the problem they have to face recently. Members' concentration expands on completing the task (hard process) and on nurturing their relationships (soft processes). For the members the group will be a reference group, which can influence their self-esteem, judgements and norms. They are waiting for the meetings and feel that the group is a special 'place' in the world. The joy of efficiency, group identity forms. Members are able to observe and treasure each other's rich own characteristics. Relationships are easy, they solve the personal oppositions. The group becomes a successful common community and will be able to self-regulate itself.

Second rivalisation period

At the end of the group processes rivalisation resurrects again, when it gets clear that after the inner work, learning and training, they will be concurrent again in the outer world. In this period rivalisation fights are not so harsh, but their matter is much deeper. Competing with the leader

renews, it is composed that he/she should be a partner, colleague, so he/she should treat the members as equal partners. We, as leaders should support this process, even if it is painful.

Goodbye, grief, evaluation

Members evaluate their experiences, look at the road they've already done, and draw a conclusion. Many of them see the development and their own achievement in this period as a whole, so the own group gets re-estimated. As an important topic, it is also mentioned how can they use the learnt things in their further life, when they will be alone between different borders.

Conclusion

It is highly important to mention that the processes we've written in the foregoing can happen in only a few minutes as well. If one of the processes is not finished properly and the group cannot step into the next phase, it could turn up as an unsolved question in the later periods. The mentioned levels of development highlight only the main points, and the development is more like a spiral than a straight line. Certain things can turn back again, but in another context. This depends on the amount of time the members spent together.

Dealing with conflicts

In order to be able to see why it is truly important dealing with conflicts consciously, at first we have to define what is a conflict exactly. Conflict is an unclear situation between two or more people/group, which challenges strong feelings and emotions, and is created because of a controversial problem or question. Conflicts are not necessarily being aggressive, sometimes it never turns out, it is never said, and sometimes none of the members realize. Conflicts heavily burden personal relations in the long run. That's why it is so important spending time and energy with conflicts, because it will worth the effort both emotionally and time-sparingly. Emotionally, because conflicts are painful for both person, not dependent on which person can prove his/her truth. Time-sparingly, because conflicts burden our feelings even in the most unimportant case, in more serious cases others can be involved that can lead to arguments and bullying.

If we think of group dynamics, we should look at the following aspects:

- What can be showing up of conflicts show us about which phase our group is in? In the earlier period of group life, to be concrete, in the storming phase, conflicts have an enormous role, because members have an opportunity to fight for example for their role in the class. The values of the class form according to this, thus it will be decided, what is accepted in the community and what is not, what kind of general values are accepted or condemned.

- If stormy phase with conflicts is created in later periods, it is possible that some kind of change is present (an arrival of a new classmate), which makes them turn back to the storming phase to reform some values and rules according to the new situation.

- Is there enough tolerance, empathy and fundamental argumentation culture for the conflicts to evolve? If we look at the class as a practicing place for self-development, then we could say that living the conflicts with their development, students can improve some effective, fundamental skills to their later adulthood. To this it is needed the conflict not to be growing tension or just fighting without any aim or hurting each other, we should build a trust net, which could hold the difference in opinion, interest and personal issues. The adult leader's task here is to control and – if it's needed – build tolerance in the group in order to make students conscious about that it is not necessary to love everyone and agree everyone, but they should be tolerant and respectful against disagreements.

Self-reflexion, and questions that help processing the experiences

The Lehua exercises offer four kinds of methods to experience interaction with others and even themselves, moreover experiencing others' and other people's sides:

- Meeting living animals and experiencing several kinds of emotions in these meetings. (Joy of relationship, fear from thought and real danger, disgust from the very different, pride that comes from beating these things, etc.)
- Through the observation of animals and learning about them we can find parallelism in behaviour. What kind of partners are the different kinds of birds? How do monkeys react as parents? What does a rhinoceros do when it is scared? How do we deal with these in our personal life?
- Living how could a person exist as an animal, and what perspective could animals demonstrate the world. What does a living specie percept from the world, which lives under the ground? What could the flying lifestyle perspective be? What lessons could these perspectives have that are interesting even for people?
- The observation of the mankind's stereotypes reflected on animals in tales, and idioms. What do we exactly talk about, when we speak about cockroaches? What kind of movements and people do we find sympathic?

Questions or other techniques after the exercises help by progressing the lived experiences, sharing the observations, deepening the learnt materials, so enrich self-knowledge. The more opportunity is there for a person to see how he/she behaves, what he/she feels, what motivates him/her, what made that feeling turn up, and how does it influence the cooperation, the clearer will the answer be for the questions of self-development: Who am I? What kind of a person am I?

We can approach discussing the various types of experiences and the personality forming happenings with verbal and non-verbal techniques as well. The most common verbal technique is the processing help question, which can happen in small or big group, but even in pairs. (At this time, members discuss the questions they've already stated.) The questions approach in three possible ways from the personal to the common experiences:

- Personal experiences, observing the own feelings. (How did it feel participating in the exercises? What was easy? What was hard? Was there anything that touched you in a specific way?)
- Evaluation of the group and its mood. (How could you cooperate as a group? Was there any strategy you followed? How efficient was that strategy?)
- Generalizing. (How is it presented in the society? What kind of similar phenomenon do you experience in the world around you?)

During the harder group games, which need much more cooperation, it is needed to discuss the cooperation related questions in a deeper context. In this part, working out the questions can be continuous as a funnel model in three steps. This kind of processing helps leading the period of review and also helps by understanding emotions, moreover, makes the participants be able to reach the evaluation of more difficult and deeper lessons, the deeper analysis of group dynamics:

What happened? First mapping the facts, then the feelings. – What events have you experienced? How do you feel about these events?

To ask the participants to tell what happened during the training will help gaining information about their experiences. This information can be much different from our observations and the

members' experiences can also differ a lot. A participant with a leading role is way more different from those who were the silent ones. This phase of review is capable of making the members express their feelings that were created during the training, which is important, because after unwrapping emotions, it is easier to step forward to the next level.

What was important? Searching for key points, key happenings.

In this level we start searching for information, which is held as important by the group. If the first level's task was collecting information, this second level is for forwarding the information. Which movements were important according to the events? How did personal experiences and emotions influence each other? What relations did form between the members?

How about the future? What kind of personal and group morals are formed?

After analysing the key points, the focus turns toward to those questions, that are related to future changes, which can make the work of the group, or of each person more efficient, free from conflicts, etc. How could we process the learnt things in practice? How can the group change its behaviour in the next exercise?

Next to the verbal techniques, which need longer answers, there are also those, which need short ones. These could be verbal or non-verbal as well.

For example:

- Concentrated expression of experiences in word, symbol, title, etc. (How would you express in one word how you are now? If there would be a movie of the experiences, what title would you give?)
- Shaping the experiences with help of pictures, colourful cards, symbolic rocks, etc. (Choose one of the pictures, which shows how you feel!)
- Shaping the experiences with 'living sculptures'. (Be in a kind of a position, which expresses how you lived this exercise.)
- Expressing experiences with creating: drawing, sculptures, panting, etc. (Create something that shows how you feel!)

Whatever method we choose, an important aspect is to create an emotionally secure atmosphere and freedom in answering the reflective questions. Important is that all participants would share from their experiences, as much as they want and that these would be accepted and understood by every other member.

In conclusion, as we see it, the trainer job has several levels and colours, it needs much practice until someone becomes professional, and will be able to concentrate on simultaneously running exercises. (The concrete leading of the training, making the programmes real. The group dynamics. Certain participants' mood.) However, we offer it by heart before starting to exercise for those, who haven't started yet. At first, we should choose a group, in front of which we are confident, competent. In the development self-reflexion can also offer some help just like on the training for the participants. We ourselves or with our partners should think about the following questions after the already held trainings: How would I evaluate the processes of the group? What kind of important happenings were there? How would I grad my trainer role? What would I change for the next time? What would I keep?

1. module: An experience-based demonstration of the objectives and the methodology of the Lehua-project

The purpose and the duration of the module	To provide initial experience for the week with the help of the knowledge gained on nature: • learning by experience • development of self-knowledge • identification of behaviour problems • gaining new knowledge on biology/nature • development of social competence (cooperation). **Duration:** 3-4 hours
Topics to be discussed	• different methods of learning • everything and everybody can become the source of the development of learning and self-knowledge • experience-based learning • informal learning
Detailed schedule of the activity	Greeting, introducing the participants 30 minutes Memorable experience with animals 30 minutes Collecting things in nature 10 minutes Break 45 minutes Investigation with animals 30 minutes Closing session, sharing experiences

Detailed description of the activities in the module

1. Greeting, getting to know each other, memorable experience with animals

Time needed	Number of people in the group	Age
30-45 minutes (depending on the number of participants)	can be a whole class	13–29

Everybody stands up, first we only ask participants to look at the faces and features of their group mates. Next, we ask them to look for their countenance, and if they happen to meet the other's countenance, they should swap their places in the circle. When the meet each other in the middle of the circle, they can greet each other as they wish with an encouraging smile, or a handshake or a padding on the shoulder, or an embrace, or with anything that feels comfortable for both of them. After this, we shall ask them to look for countenances, but when they meet in the middle of the circle, they should say the other person's name aloud. This will help them memorise the names.

After everybody has had the chance to meet the majority of the group mates, we shall stand in a circle again forming pairs preferably with people they know the least. Then we shall ask them to share the following ideas with each other:

- The most memorable/determining experience with animals in my life (it can be positive or negative)
- What do you think? If your pair had the chance, what kind of animal would he/she prefer to change to and why.
- A further question on the subject we have some time left.

Every pair has 6-6 minutes for each question, and the pairs swap after each question in order for the participants to be able to get to know as many people as possible.
If there is a new pair-work exercise coming, the last instruction should ask them to choose the pair, with whom they will work together for a longer period of time.

Pitfalls and experience:
In case the majority of the pairs do not feel at ease and finish their conversation sooner than the given time frame, the discussion can be finished earlier. In a reverse case, if there is a lively debate, we should give them some extra time for their discussion.

2. Collecting things in nature

Time needed	Number of people in the group	Age	Tools	Preparations
from 30 minutes up to 4 hours	in groups of 4-5 (3-8), any number of groups can be formed, ideally 3 groups (from1 – up to 6 groups)	13-29	worksheet, nature	forming groups, distributing worksheets to the groups, determining the size of the area for the exercise

Each group has to find tasks listed on their worksheet. The number of tasks depends on the time the participants want to spend on the game. In 1 hour usually 10-20 tasks can be completed.
Examples for the tasks:

- something which reaches out towards the Sun
- something which is hidden from the Sun
- something which can be a cloud
- something, which shows that the wind is blowing
- something, which shows what it is like after the rain
- feather
- bone
- they are exactly one hundred
- something blown up by the wind
- the animals' underground habitat
- something sharp
- something beautiful
- something white
- something soft
- a big smile
- a leaf bitten by somebody (not by you!)
- trash thrown away by 5 people

- something which is completely straight
- something, which has no role in nature
- something, which is important in nature
- something, which collects solar energy
- something, which gives a sound
- a big smile

The completion of the task can be done differently depending on the nature of the task: by collecting the items physically, by taking photographs, by showing them, or by simply talking about them.
After the groups have finished the tasks, we should discuss them. In this way, they can learn from each other by sharing their feelings, and experience.
In tasks, (e.g. a big smile) where there is no concrete solution, they should explain why they chose the given subject or phenomenon, what they think about them.

Variations:
Can be played once, but if the group spends a longer time together (e.g. in a camp), some tasks can be given daily. Tasks can be classified according to the following groups e.g. weather, senses, usefulness of nature or animals.
The completion of the tasks can be done scattered from one place, or on a given route, or on the occasion of hiking.

Pitfalls and experience:
On assigning the "hunting area", we should make sure to adjust its size to the local knowledge of the group in order to prevent them from getting lost. But since a very small area can be enough in order to solve the tasks, this is usually not a problem.
If the groups are too big, it may be a problem that some members do not take part in the activity.

Source:
Cornell, Joseph: Sharing nature with children (Watford, Herts, Exley Publications, 1990

3. Investigation with animals

Time needed	Number of people in a group	Age	Tools
45 minutes	can be a whole class	13-29	map of the area by marking the location of the "victim", traces necessary in order to make the story (objects, photos, animals parts), slips of paper necessary for the investigation (which are numbered by the groups based on what they regard to be traces), tools needed to make graphic novels (scissors, paper, glue, marker pen, graphic novel base -newspapers)

In a classroom or in the school yard different objects, animal parts are placed before the game. Objects, which are relevant from the point of view of the story, as well as objects that are not important in the story. Bony objects relating to the victim are necessary to be placed. They are the only ones, which are marked on investigation sheets given to the players at the beginning of

the game. The remaining traces must be identified by the players themselves by paying attention to the following things:
The location of the victim can be found based on the map. How is the victim situated? What kind of remains can we see? Who can be the victim? Can there be more victims? What other traces can we record? What messages do the traces transmit? What can be the cause of the death?

Discussion:
Detectives make notes by investigating the area on the basis of the recorded traces, remains, objects and messages. The participating groups prepare their own report in the form of a graphic novel (either from newspaper articles or from drawings). In the end, the groups present their "case", which they have investigated. What kind of story do we get to know form the files?

Aspects to be considered in discussing the task:

- Where can the scene of the crime/location? What kind of traces have you found? What other traces can we record?
- What messages do the traces transmit?
- What kind of remains can we see?
- What/Who could have been the victim?
- What is the most probable cause of the death?
- Who could have been the perpetrator?
- What kind of story can we detect from the traces?
- Was it difficult to identify the victim? The traces? To what extent was the context straightforward or complex? Was it difficult to unfold the story?

If we carry out our tasks within the framework of an educational activity:
It is important for the tasks to build on the knowledge gained in a formal educational environment. We should build the knowledge from different school subjects in our activities and we should approach them from a new angle, the creative and independent processing of which will make it enjoyable for the participants.

For the activities held in the zoo we use the scull of a polar bear. The misleading traces refer to a reindeer or a seal. In order to help, we place traces referring to their habitat and its destruction. With our irresponsible behaviour, and the acceleration of global warming it is us who cause the death of the animal.

Worth to know: background information about the subject

Polar bear (*Ursus maritimus*)
Distribution: Arctic Circle
Dimensions: Size: 200–250 cm,
weight: 150–800 kg
Diet: Carnivorous
Social interactions: Predominantly solitary in the wild

This species has received its scientific name meaning "maritime bear" for spending most of its time on polar sea ice. It covers long distances responding to seasonal changes in

sea ice conditions. Although predominantly solitary, abundant food resources may attract as many as a dozen individuals from far and away to a given site. The fur of these bears is actually transparent but looks white due to the air spaces in the coarse guard hairs scattering visible light. Whereas cubs have a snow white pelage, adults appear tan or yellowish to the eye. The outer layer repels water, the thick undercoat serves as insulation. The skin is black to absorb more heat. The largest of extant ursids, boars standing on their hind legs may be up to 3 metres high. These are the best swimmers of all bears, using mainly their large forepaws for propulsion. Polar and brown bears are thought to have diverged from their common ancestor as recently as 200,000 years ago. The melting of Arctic sea ice seriously threatens the long-term survival of this species.

More about the topic:
https://www.iucnredlist.org/species/22823/14871490
http://www.zoobudapest.com
http://www.termeszettar.hu/anyagok/jeges/jeges.htm
http://www.allatvilagmagazin.hu/allatvilag-archiv/allatvilag-2015-4.pdf
https://szabadtudostermeszetbuvar.blog.hu/2014/11/14/miert_ne_egyel_jegesmedve_majat

2. module: Controlled by the senses

The purpose and the duration of the module	*To explain the differences between sensing, perceiving and contemplating. The ways of perception and their consequences.* • relation between body structure, lifestyle and behaviour • drawing conclusions • relation between behaviour and perception • names of the sensory organs and the sensations they perceive and differentiate • teamwork, self-organization **Time span:** 3–4 hours
Topics to be discussed	• physical differences in perception • factors affecting our perception of reality (emotions, attitudes, etc.) • adaptation, evolution, psychology • empathy, tolerance, nature conservation
Detailed schedule of the activity	15 minutes Methodological assessment and discussion 10 minutes Energizing play – animal sounds – find your partner by voice or activating senses, attuning to activity 10 minutes Orientation in bats 30 minutes Mystery boxes: examination of animal parts by touch 15 minutes See what a rhino sees 30 minutes Presentation – animal senses 10 minutes Break 60 minutes Formulating individual moral principles based on differences in perceiving animals 60 minutes Defining individual expectations, pledges and development objectives by using the “three triples” approach

Detailed description of the activities in the module

1. Methodological assessment and discussion

Time needed	Number of people in the group	Age
15 minutes	can be a whole class	13–29

Every morning, participants should be given the opportunity to discuss issues dealt with on the previous day with their instructors. A day after they will typically have a deeper understanding of the events and can/dare to ask better questions. This also gives latecomers a chance for falling into line with the others.

2. Activating senses, attuning to activity

Time demand: 5 minutes
We sit down in a circle, close our eyes and concentrate on bodily feelings, then on noises, after that on the taste and smell of food given around on plates, and subsequently on the touch of scarves circulated among the participants.

3. Bat orientation game

Time demand	Group size	Age	Accessories
10–20 minutes	minimum 15 participants	13-29	scarf/shawl

Participants disperse in the room/area. We ask one of them to take the role of a bat and seal his/her eyes with a scarf/shawl. With his/her vision thus impaired he/she must find his/her way to the other end of the room, evading the objects or obstacles represented by the other participants. While "flying around", he/she emits sounds, which "get reflected" by the "objects," i.e., the participant(s) closest to the "bat" repeat(s)—"echo(es)"—the same sound. The bat must find the way without bouncing into any obstacle. The volume of each "echo" may reflect the distance of an object from the bat, i.e., obstacles nearby resound louder than those further away.

Variations:
Alternatively, one of the participants may take the role of a moth. In this case, the assignment of the bat is to hunt down the moth. We ask the participants to form a circle and hold hands. The two "actors" will take their places in the centre of the circle, one playing the bat, the other its prey. The bat has his/her eyes sealed and can only hear but not see the victim. When the actor playing the bat shouts "bat," the other has to answer with "moth." The more the bat calls out for its victim, the easier it will be to catch it. Once the assignment is accomplished, participants may change roles. Matters can further be complicated by:

- increasing the number of moths
- expanding or narrowing the circle
- assigning special abilities to some moths: for instance, the capacity of reflecting ultrasonic waves on a different frequency, i.e. remaining "silent" under certain conditions

Reflective questions:

- How did you feel yourself?
- Did you have any negative emotion about not seeing your environment and the location of obstacles?
- Did you feel yourself confident or rather the opposite? Were you afraid of bouncing into an object?

4. Mystery boxes

Time needed	Number of people in the group	Age
20–30 minutes	up to a whole class	13–29

Various objects and animal parts (bones, shells, shed skin, antlers, horns, hairs, etc.) can be utilized for filling the mystery box. However, care should be taken not to use injurious or fragile items. Live animals should under no circumstance be placed in a mystery box. A further possibility would

be to pinpoint properties shared by every object, e.g., all are made of horn, originate from a certain type of habitat, etc.

Reflective questions:

- Was sticking your hand in the mystery box an unpleasant experience? If yes, what did you fear?
- What thoughts did you have that rendered putting your hand in the box more difficult?
- Did the reactions of others around you made any difference to you?
- If not, why was this an easy task for you?
- Was it easy or rather difficult for you to determine the contents of the box?

5. See what a rhino sees

Time demand	Group size	Age	Accessories
10–15 minutes	up to a whole class, 25–30 participants maximum	13-29	two empty toilet paper rolls each, joined together with elastic bands to create “rhino spectacles”

In a classroom or school yard participants wearing “rhino spectacles”—i.e., having “tunnel vision”—must avoid collision with various challenging objects while moving around in an ever increasing tempo. If everything goes well, a more complex obstacle course can be constructed using chairs, boxes or any object available.
Participants will quickly notice how much the “rhino spectacles” restrict their field of vision. The instructor’s task is to inform them about the vision, habitat and lifestyle of rhinoceroses (as well as other large-bodied herbivores, such as hyppos and elephants). Some correlations can also be pointed out, e.g., between the high number of accidents and the relatively high speed of partially sighted animals. Other potential topics to deal with include the conservation status (endangerment) of rhinoceros species.

Variations:
Further variations to the same game include steering a horse buggy pulled by a “blinded” horse.

To be watched for:
As participants may easily bounce into barriers, fragile objects must not be put in their way. Care should be taken that there are no sharp, injurious things in the vicinity of the obstacle course either.

Reflective questions:

- How was it to wear glasses? Did you see worse? What didn’t you see?
- Can an unsteady view of your surroundings affect your behaviour?
- Do you think that the behaviour of rhinos is similarly affected by their poor sight? Can you give examples of human parallels?

6. Learning our lesson through the differences of the animals’ perception

Time demand	Group size	Age	Tools
20-30 minutes	8-24 people	13-29	paper, pen/pencil

Reflection circle. We form small groups from every 4th and 6th participants. The small groups sit in a circle; the team leader gives paper and pen to everybody. The team leader poses the following questions:

- How did you feel during the tasks? Did any of them have a special effect on you? Did you come across any which caused any difficulty or bad feeling?
- What are your strengths? What are your weaknesses? Which of your abilities would you like to develop?
- What animal would you like to be (which animal do you resemble)?
- What animal would you like to become?
- What animal would you not like to become in any way?

The participants first think about the questions to themselves, then they discuss together who has chosen what animal and why. They can write down their answers if they like.

The team leader then asks the following questions in connection with the chosen animal in order to deepen the conversation to the people still sitting in small groups:

- What can be the strengths and weaknesses of your chosen animal?
- What characteristics do you have that is also typical of the chosen animal?
- Does the chosen animal have any characteristics that you would like to develop yourself?
- Does the chosen animal have any characteristics that you could not identify yourself with?

The small groups discuss further questions, as well. Then if the group agrees everybody can tell what animal he/she has chosen and why, in a bigger circle.

Worth to know: background information about the subject

- Specialized bodily structures that receive stimuli and are affected in such a manner as to initiate excitation of associated sensory nerve fibres are called sense organs. Our sense organs are: eyes, nose, tongue, ears, skin.
- Sensing: Detection of stimuli coming from the outside world by using our senses and sensory nerve cells (receptor cells). Receptors convert physical or chemical stimuli into electric signals, which are then passed on through sensory neurons to the brain for processing. The sensory system also codes type (modality), intensity, location and duration of each stimulus.
- Sensing modalities: Sight, hearing, smell, taste, touch (thermoception, pain perception, body perception).

Basic and special ("super") senses

In many animals, certain sensory organs are more important— i.e., more developed—than others.

- Environmental adaptation

↓

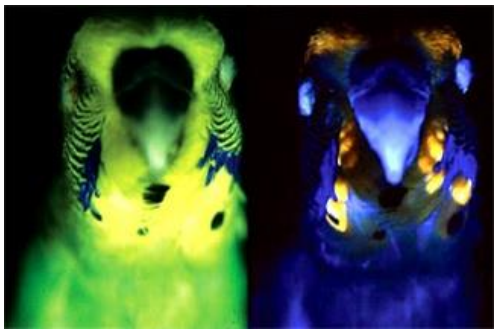
development of special sense organs

- The sensitivity of sense organs varies per species

↓

unique view of the world

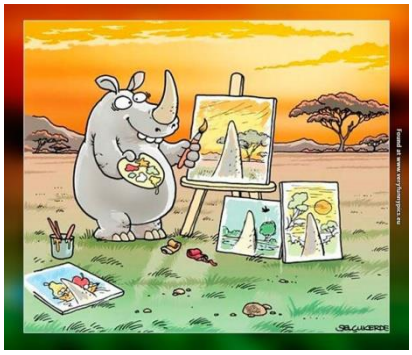
A) Vision

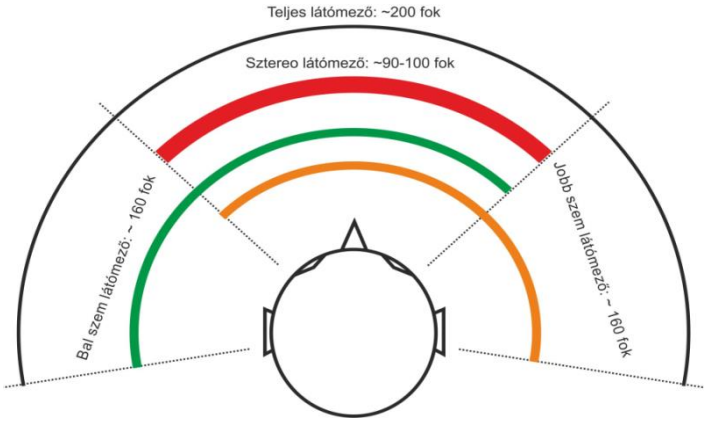


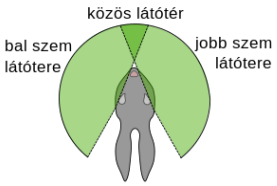
The eyes are the most important sensory organs to humans. Special photoreceptor cells found in the retina detect light and specific colours. Images formed on the retina are inverted and processed by the brain. The abilities of animals vary according to their mode of life. For instance, carnivores have sharper vision and perceive depth whereas fruit-eaters are better at differentiating colours.

- Also we see colours – our cone cells selectively detect red, blue or green wavelengths of light.
- The three types of colour receptors in their eyes gives bees trichromatic vision. One of the receptors detects UV light invisible to us. However, there is no receptor for the red region of the spectrum. This means that the colour we see as red is perceived as black by these insects. So their vision is shifted toward the ultraviolet spectrum.
- Birds: UV vision functions in signalling. The plumage of older, more experienced males reflects greater amounts of light so they are more likely to find mates. Females can evaluate the condition, age, fitness, etc. of males just by their UV reflectance.

Stereopsis – field of vision

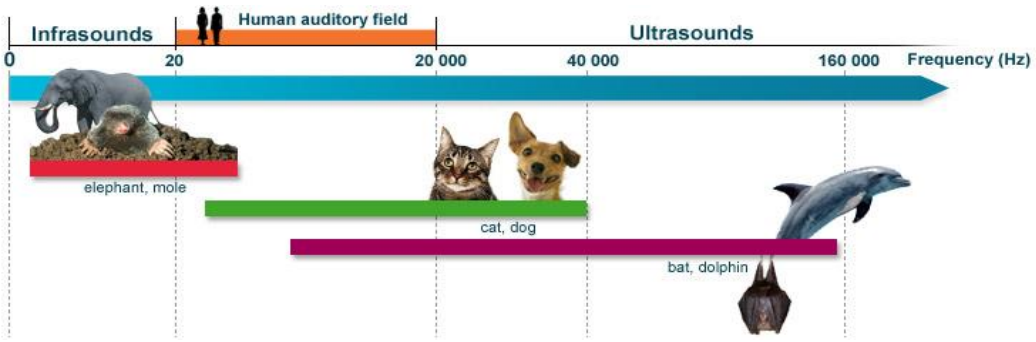






B) Hearing

The organs of hearing (ears) perceive sound. Waves or pressure variations in the air created by a sound source are detected by the ears. A membrane called eardrum collects vibrations and sends them to tiny bones in the middle ear, which pass them on towards the inner ear, where they are converted into nervous signals and transmitted to the brain, to be perceived as sound.



Hearing range: Approximately 0.02–20 kHz in humans; normal speech 0.087–1.175 kHz

Lower frequency waves have better penetration capabilities, so deeper sounds carry further than higher ones. (This is why the heavy bass coming from your neighbour's speakers is more noticeable than any other part of the music.) Elephants communicate largely with infrasound below the threshold of human hearing sensitivity.

Echolocation, or the orientation abilities of bats

These animals find their food (flying insects) by detecting echoes. Bats (as well as toothed whales) emit high-frequency ultrasounds—clicks, chirps—inaudible to human ears in order to "scan" their surroundings. They then intercept sonar pulses bouncing back from objects (or animals) with their extremely sensitive ears, which helps them to orient and locate prey.

C) Touch

The skin and deeper tissues contain millions of cutaneous receptors whose purpose is to sense the modalities pressure, vibration, touch (soft or hard, smooth or rough), pain as well as temperature (cold or warm). Certain body parts have more touch receptors than others, for instance the nose of animals, our hands, and the antennae of insects.

More about the topic:

http://zoorope.hu/megorzes/
http://www.origo.hu/tudomany/20100309-a-kornyezet-az-allatok-szemevel.html
http://www.haon.hu/fotok-elkepeszto-hogyan-latjak-a-vilagot-az-allatok/3208775
https://www.hazipatika.com/eletmod/tudomanyos_erdekessegek/cikkek/szemek_nelkul_latni/20121008150230
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http://www.termeszettar.hu/anyagok/rhino/rhino.htm
https://24.hu/tudomany/2018/03/28/hulyeseg-orrszarvu-sudan-orvvadaszat/

3. module: Diversity

The purpose and the duration of the module	To recognise that we are diverse and anything can have an adaptive value: • aspects of the diversity of people and animals • to be aware of stereotypes, prejudice, understanding them • to develop empathy at a social level and in connection with nature.
Topics to be discussed	• diversity • openness, tolerance, empathy • stereotype, prejudice • adaptation, evolution, psychology • self-knowledge **Duration**: 3-4 hours
Detailed schedule of the activity	30 minutes Activity with Coloured worms 30 minutes Passing on knowledge: adaptation, diversity 60 minutes Passing on knowledge: diversity in many legs – touching live arthropods (using contact animals) 30 minutes Sharing personal lesson and experience (walking in nature in groups of 3) 10 minutes Break 80 minutes Forming small expert groups, understanding

Detailed description of the activities in the module

1. Game with Coloured worms

Time needed	Number of people in the group	Age	Tools	Age groups
20-30 minutes	4-30 people	13-29	strings of different colour (at least 8), tools (poles, tweezers etc.)	with smaller modifications this activity can be recommended to any age group. It is an outdoor activity.

The team leader prepares the 8-10 cm long coloured “worms”, which must be scattered around in the grass in an area of about 10 X 10 metres. The groups have to find and collect as many works as possible with the help of a “bird’s beak” in a given time period. One player can only collect one worm at a time. At the end of the game we count how many worms have been collected, and also how many camouflage worms have been found.
If we play it in a team, the winner is the one, who has collected the most worms, or the most camouflage worms.

At the end of the game, participants discuss the role of camouflage in nature and its advantages.

Variations:
We classify participants according to bird-families (3-6 people), where parents' duty is to provide food needed to bring up the nesting birds.
Points can be given to the worms: the camouflage coloured ones (whitish in winter, green-brownish in the summer) are worth more, e.g. 3 points/worm, while worms with harsh colours are worth fewer points (red, yellow, orange) e.g. 1 or 2 points.

Worth to know: background information about the subject

A) Adaptation

Adaptation is the act or process of changing, of which two types can be distinguished. First, individuals change in order to be successful in a particular environment. This is called individual adaptation.
The second type is an evolutionary process in which certain inherited traits and the frequency of alleles determining them gradually increases, whereas other traits get repressed over generations. The trait obtained as a result of the process characterizing a population or an entire species is also called an adaptation.

Adapting to winter: Animals living in the temperate zone must adapt to the changing weather in winter. According to their genetic program, they either migrate to a warm location for the season, stay at home or hibernate—use torpor—to survive the winter.
Migratory birds fly south in fall, following their food resources. Typical migratory birds native to Hungary include barn swallows and white storks, whereas Eurasian eagle-owls, grey partridges and house sparrows are examples of resident species. Tits and woodpeckers leave the forests to winter in or close to human settlements.
Whereas most migrating animals are birds, hibernating is a more characteristic strategy to survive in mammals—and, of course, reptiles, insects, and alike.
Resident animals conserve energy in various ways. Arthropods, amphibians and reptiles seek frost-free refuges, lower their metabolism and go into torpor.
There is much variation in the overwintering strategies of mammals, too. Some species, such as the red squirrel, hoard up plenty of food before the onset of winter and **wake up regularly** to eat. Despite the cold, hamsters arouse once in a week to feed, urinate and defecate, before going back to sleep again. Also bears are superficial sleepers: when they first emerge from their dens in spring and the weather is not to their liking, they simply return to continue hibernating.
Still others **hibernate deeply** by decreasing their metabolism and slowly using up fat reserves built up at the end of summer and autumn. European sousliks, dormice and hedgehogs all belong to this category. Some species, e.g., bats, form large winter aggregations so they can gain heat from each other.

Matching the environment – mimicry
In order to survive, animals have developed an array of defence mechanisms—various ways of hiding, deceiving and warning—, which are equally successfully used by predators and their prey. Mimicry is an evolved resemblance between an organism and another object— typically an organism or another species—in general appearance, colouration, pattern, smell or behaviour. The purpose of disguising may be self-defence, as in the case of camouflaging, which aims for crypsis through a general resemblance to the environment.

Diversity on many legs: the insect world

The presentation can be illustrated with any kind of live insect available to the instructor, such as a stick insect, a cockroach, a ladybird, a firebug, a leaf beetle, a rose chafer, an ant, etc.

The idiom “Variety is the spice of life” holds especially true for insects. Their enormous diversity appears endless, as if the “creativity of nature” had no limit. Although people often refer to hexapod invertebrates as agricultural pests or disgusting creatures, they are actually quite admirable.
Apart from polar regions, wherever we go on Earth, we are likely to meet some or another insect, so one would think that these creatures can tolerate almost anything. However, if we take a closer look, we will notice that they differ markedly from one region to another, and with a few exceptions are bound to one particular type of habitat.
Given that the majority of their species can only survive and reproduce in a very specific microenvironment, it must be due to their immense diversity that insects are found in virtually all kinds of biotopes. With over a million described species, insects are the most numerous and diverse group of animals. About two-thirds of all living organisms belong to this class.

The **diversity of insects** is unique in almost every respect. Many are carnivorous or herbivorous, others feed on dead organic matter, and some are parasites. Whereas truly marine insects are few, freshwater species are much more numerous, but the overwhelming majority is terrestrial. They are unequally distributed over the world. Fifty percent of all insect species inhabit the tropics. According to their activity patterns, they can be diurnal or nocturnal. Many have a solitary lifestyle, but gregarious species are also very numerous, and some are social (live in colonies).
Their outstanding diversity is obvious even within a relatively small area: a single oak tree may sustain hundreds of insect species!
The first arthropod domesticated (around 3000 BC) by humans is the silkmoth (*Bombyx mori*). Since then, people succeeded in taming just one more species from this most diverse group of animals: the honeybee (*Apis mellifera*) (approximately 1100 BC, in Egypt).
Arthropods are deservedly considered the most specialized and in their own right the most highly developed group of animals. In fact, it is this extraordinary degree of specialization that makes it nearly impossible for us to “change” them. An indispensable prerequisite for their effective keeping and breeding is that we have a good knowledge of their specific demands and we seek to meet these needs in each and every respect. Because we cannot alter their behaviour, habits or space requirements by accustoming or other conditioning.

Body structure
The integument of insects is formed by the cuticle. This exoskeleton made up of chitin (a long-chain polymer of N-acetylglucosamine) and proteins is highly resistant to physical and chemical factors, and also gives excellent protection against infections. Externally, it is covered with a thin layer of wax, which effectively prevents dehydration. Because they cannot sweat, arthropods rarely drink and typically take up water from their food to fulfill their requirements. The stiff

exoskeleton of insects is also a passive locomotory organ to which the muscles governing movements are attached. Therefore, it consists of several segments, similar to the steel armour of Medieval knights. As these segments are connected by thin, flexible chitinous joints, the armour is virtually continuous.

Because the cuticle is a lifeless part of their exoskeleton, arthropods need special appendages to perceive stimuli coming from the outside world. Their sense of touch is associated with various types of hair which arise from the epidermis below the cuticle and extend above the chitinous armour via small pores. These minuscule sensillae completely cover their bodies, including their tarsi. Of course, they are considerably more numerous in anatomical regions where they are needed most (antennae, pedipalps, legs, etc.). Several types can be distinguished: while the purpose of many is to sense vibrations, some monitor temperature, detect chemical stimuli (taste, smell) or keep track of the relative position of the animal.
Arthropods are the most sensitive and vulnerable at the time of moulting. For them, ecdysis means much more than just casting off the old epidermis because these animals shed their entire exoskeleton and emerge as if "reborn." The "new" insect may thus differ markedly in size, shape as well as colour pattern from the "old" one. All arthropods must shed several times between hatching from the egg as larvae and reaching their imago stages. Being a lifeless product, their cuticle cannot physically grow with them, so they need to periodically exchange it for a larger one. Moulting is induced by hormones.

Reflective questions:

- How did it feel to touch animals? Have you ever had a similar experience?
- Did this exercise pose any challenge to you?
- If yes, what did you fear?
- Did it made a difference to you how the others near you responded to animals?

More about the topic:

https://www.rovartani.hu/a-rovarvilag-attekintese
https://www.izeltlabuak.hu
https://www.tankonyvtar.hu/hu/tartalom/tamop412A/2011-0073_bevezetes_allattanba/ch26.html
http://zoozoo.hu/10-fantasztikusan-rejtozkodo-allat-te-megtalalod-oket/
https://mttmuzeum.blog.hu/2015/09/22/hogyan_csinaljunk_rovarbolcsot_oreg_erdok_rovarainak_egy_muzeum_parkjaban
https://www.zaol.hu/erdovedo/tobb-ezer-faj-egy-fan-1414381/

4. module: Needs

The purpose and the duration of the module	To recognise the difference in needs both among animals and people – we need different things. How can we take into account each other's and our own needs, and help them to be satisfied? • to learn working in a group • to build community spirit • self-reflection • to increase creativity
Topics to be discussed	• the hierarchy of needs (Maslow pyramid model) • human and animal needs, motivations • Murray's system of needs • the recognition and expression of needs, demands, reaction to the needs of others Duration: 7-8 hours
Detailed schedule of the activity	15 minutes Methodological questions - answers 10 minutes Energising game 35 minutes Passing on knowledge – the migration of birds 45 minutes Who can fill his belly more quickly? Wolves and deer game. or Expedition 15 minutes Break 80 minutes Small group activity – poster and acting 40 minutes Short relaxation and creative individual activity 90 minutes Lunch break 10 minutes Energising game 70 minutes Fairy-tale pedagogical activity – The cockroach which carried a mountain on its back 30 minutes to invent a story with animals together 10 minutes Passing on information about the trip the next day 30 minutes Methodological discussion

Detailed description of the activities in the module

1. Methodological questions - answers

Time needed	Number of people in the group	Age
15 minutes	can be a whole class	13–29

We should provide an opportunity one morning for the participants to discuss questions raised the previous day with their trainers. Then people will have a better understanding of the

happenings of the previous day and will be able to ask more profound questions. This will also give a chance for latecomers to catch up with the others.

2. Who can fill his belly more quickly?

Duration	Number of people in the group	Age	Tools	Preparation
30-45 minutes	divided into two groups	13-29	string, piece of cloth	to choose the playing field

Participants are divided into two groups. One group will be apex predators; the other group might be herbivores or even predators. The two groups stand at two sides of a 3-4 m wide lane (which are marked with two strings), as if they were standing at the side of a road. We scatter around pieces of string and cloth to represent food, which the hungry animals have to collect in a previously agreed manner. Depending on what animals are chosen, we show the movements how they eat their food. They must eat, otherwise they will starve to death. The team leader gives a sign to the second group (the prey animals) to get their food. In a short while he gives a sign to the apex predators to start hunting (it may take some time until the predator finds its prey). The game is supposed to show the importance of time and strategy in finding food.
The prey groups may help each other, and the predators may also form an attacking group of animals following a strategy. (e.g. wolf-deer).

Suggestions:

- precisely identifying the food collecting area
- agreeing on the manner of catching (touching or catching)
- when the team leader gives his sign to start looking for food it should not be predictable (e.g. standing with his back when giving the sign, or whistling holding a pipe in his mouth etc.)

Variations (optional):

- the amount of food necessary for survival can be increased (e.g. at 3 strings must be collected for survival)
- to decrease the food collecting area
- it is not enough to touch the prey as they can still get free, it must be caught
- the caught animals may strengthen the other team or may quit the game

3. Activity with small groups – poster and acting

Time demand	Group size	Age	Tools
80 minutes	8-24 people	13-29	Flipchart sheets of paper, drawing – and stationery items; colourful shawls, other props needed for the scenes. The instructions for the activity printed for all the small groups

In a big group circle the team leader introduces the topic of the needs. (It is very important to talk about the needs).
Be it physical needs or other social or individual needs – for example the need to be recognised or the need for self-expression – it is important to recognise our own needs as well as the needs of

the others and to be able to communicate about them properly and to react to them.) In order to discuss the matter further, we should divide the group into three small groups.
The small groups always get the same task, while they work on three different questions. First, each small group discusses shortly its own question. (Is there a difference between the needs of the animals and the needs of the humans? What is the relationship between the bodily and emotional/psychological needs? Is there a difference between the needs when you are a child, an adult or an old person?) After this, the small groups based on their own question and answers given to them work on the following two things:

- A one-minute dramatic scene, in which all members of the small group participate. The scene should contain a message in connection with the given question which is important for the small group.
- A call on a social issue/poster (on flipchart paper), which contains a message in connection with the given question, which is important for the small group.

The groups have 35 minutes for both the discussion and the creative work altogether.
The small groups then sit in a half circle and show their work to the others one by one at the open "stage-like" space of the half circle. First they act their dramatic scenes one after the other, without any explanation. Then the social call projects with short explanations.
Following this, the small groups will have the opportunity to make comments on each other's performances and to discuss their ideas in connection with the problems raised in their work. The team leader facilitates the conversation.

Variations:
The activity can be done in connection with any other issues relating to the topic of the needs.

4. Short relaxation and a creative individual activity

Time needed	Number of people in the group	Age	Tools	Purpose
40 minutes	8-24 people	13-29	A device which can play a relaxing, about 4-5-minute music. A5 size sheets of paper identical with the number of participants. Drawing equipment, plasticine of different colours, material to be found in nature. (Pebbles, seeds, leaves, etc.). A "displaying table" to display the art works.	Individual introspects, the development of self-knowledge. The development of the communication of our own needs and those of the others. A deeper understanding of each other

Members of the group sit in a big circle. The team leader tells them that he group will have the opportunity to engage in a creative individual activity. Everybody is asked to focus on what his/her most important needs are, either currently or in general. The team leader gives the following instruction: I will ask you to make yourselves feel as comfortable as you can. I am going to play music. While the music is being played, please imagine you are the animal you have chosen you would like to be. You can close your eyes if you want. Try to imagine what it feels like to be the animal you have chosen. What is the ideal environment of that animal? What is the place like

where it feels safe and sound? What is the place like where it really feels it can be itself? What are the needs of this animal? What are its needs, which are identical with your needs? The team leader plays the music, while the group members listen and mediate peacefully.
After the music has faded, the tea leader gives the following instruction: As the music has faded, I would like to ask you to return to your chosen animal's place to yourselves. Try to think and imagine what the most important thing was for you concerning the ideal environment of your chosen animal. What are the things that you also need in this ideal environment? If you are ready, you will get thirty minutes to create something to present how you feel. Everybody will get an A5 size paper to prepare his/her artwork. We are going to exhibit the artworks. You can draw, use plasticine, stones, leaves. You can use anything you need to create your artwork. When you finish your work, please give it a title, write your title on your paper and place it on the "displaying table". After 30 minutes the group members place their artworks on the "displaying table" and take a look at each other's works.
After having seen the artworks, the group members sit in a big circle sharing how they felt while they were listening to the music and what their artwork means to them. Group members can ask questions from each other. Sharing is facilitated by the team leader.

5. Fairy-Tale pedagogical activity – The cockroach, which carried a mountain on its back

Time needed	Number of people in the group	Age	Tools	Purpose
80 minutes	6-20 people	13-29	leaves identical with the number of participants, walnuts and pebbles; mattress/ pillow / rug for physical exercise, pebble shaped cardboard (on which you can write), pens. Perhaps the description of a cockroach	the development of self-knowledge. To increase the ability to express his/her own needs. To bring up issues relating to one's own limits, capacity

1. Entrance: Offering leaves, walnuts and pebbles on a plate: choose one that you can carry easily!
2. We sit in a circle. Opening circle: why did you choose your object?
3. Physical exercise: Choose a pair for yourself. The pairs should find a place for themselves in the room, if they want, they can take a rug/ mattress / pillow. One of them stands on all fours, the other stands on his/her knees beside his/her pair (they swap roles later). The one on all fours should imagine that he/she is a lake. Leaves fall in the lake (one participant on his/her knees should gently touch the other's back for about 1-1.5 minutes). Walnuts are falling now (he/should touch the other's back more strongly for 1-2 minutes). Swans arrive at the lake. First the young ones fly on the lake, but later on bigger ones arrive. (Touching even stronger). The surface of the lake it full, and the pressure on the lake is getting bigger and bigger. (The one on his/her knees should put an increasing pressure on his/her pair on all fours, who should announce that the pressure is too big). Role-change.
4. We sit in a circle. What was it like to be under pressure? What was it like to put pressure on the others?

5. We often feel to under a big pressure, but we can still cope (or cannot). Now I have brought you a story about a cockroach that once carried a whole mountain on its back. Story-telling (preferably orally to maintain personal contact and to make it possible to create a story-telling trans atmosphere. A few second silence after the end of the story. *(See below in more details)*
6. To introduce a personal level: And now, close your eyes. Please, think about where you are in the story. What do you feel, what puts pressure on your back?
7. A leaf? A walnut? A pebble? A whole mountain? How do you feel in this regard? Where do you feel it in your body? Discussion, conversation. We should make sure that everybody has a chance to say something.

   Questions:
   - Who feels that he/she is carrying a leaf? What are leaf-problems like? (has a small effect, does not last long)
   - Who feels that a walnut has dropped on him/her? What are walnut-problems like? (unpleasant, but the feeling does not last long)
   - Who feels that a pebble has fallen on him/her? What are pebble-problems like? (causes pain, but the feeling does not last forever)
   - Who has the feeling that a whole mountain is sitting on his/her back? When do we come across such situations?
   - When should we become as flat as a leaf, when should we hide in a crack and when shouldn't we? (in other words, to adjust, or to resist, or to avoid the situation). (e.g. in a workplace, in a relationship, in family conflicts, at school) This is where we can introduce the concept of resilience.

8. Further activity / personal task: Distribute the pebble shaped cardboards. Write on one side of your pebble the problems that you feel you will have to carry on your backs in your lives. On the other side, write problems from which you have to become flat, like a leaf and hide in a crack. You are not going to give your pebbles to other players, (individual task)
9. Discussion: The participants, who want, can share what they wrote on their paper. (If there are many participants, two people can discuss their ideas together)
10. Exit: Everybody should hold in his/her hand the object that he/she chose from the plate on entering. They should put it back on the plate and should tell himself/herself what problem he/she is trying to get rid of. They should choose another object from nature.

Variation:
Following step 8, there is a possibility to introduce a live animal, provided it is possible for the team leader to bring a live cockroach for the activity: Caressing a cockroach (Madagascar hissing cockroach): The team leader holds the cockroach in his/her hand and helps participants to hold/caress the animal, who feel like doing it. In the meantime, he/she talks about the cockroach. Look how strong their shells are! Have you ever come across a cockroach? How come a cockroach can survive different situations (here you can give information, or distribute information). Touch the cockroach, if possible, in this way you can recall better the situation when it is worth resisting and carry things on our backs, but there are situations when in order to survive, we should choose the cockroach strategy.

Worth to know: background information about the subject

A) Bird migration and our migratory birds

Reasons for migration:

The **main driving force behind bird migration is a decrease of resources** and not, as frequently believed, cold. Migratory birds leave because they cannot find enough—or any—food in winter. Those that remain (the resident birds) stay here because their nourishment is constantly available in sufficient quantities or they can switch to another diet in this challenging period (for instance, both hoopoes and coal tits eat insects in the vegetative season, but whereas coal tits can subsist on seeds in winter, hoopoes are rather picky so they have to move to more resourceful regions in order to survive). Also handicapped white storks that skip migration due to injury can pull through the winter in places with a temperate climate, feeding on rubbish dumps.

Preparation to migration:

The majority of migratory birds **moults** its plumage before departure. Replacing their old feathers with new ones is of utmost importance to these animals so that they can complete their long and exhausting trip to their wintering grounds with less effort. Normally, birds spend most of their time eating but when they are on the move, they cannot do this. So as a preparation to migration they fill their fat reserves, in addition to moulting. By the end of summer, chicks are already independent and must not be fed by their parents but food is still plentiful. This is the period that birds use for **depositing fat**, by which they can, in extreme cases, duplicate their own body weight (e.g., garden warblers) but increase it by a minimum of 30%. During migration they will rely on this fat reserve for energy, because they have no “time” or opportunity to feed while flying over a sea or desert.

Timing of migration:

Birds time their departure according to two main criteria. Those that have to cover long distances (most migratory birds) must leave on a more or less fixed date whereas the others are directly forced to move south by the depletion of food supplies. Members of the first group typically subsist on a diet that will suddenly become unavailable (e.g., insects), so they need to get away before this occurs. Short-distance migrants can survive on berries and other fall fruit for some time and slowly extend southwards as nourishment becomes scarce. The time of departure is species-specific but may also be influenced by actual weather conditions and the availability of resources.

Orientation in birds:

Birds can rely on a variety of “aids” for orientation. A few navigate using the Earth’s magnetic field, i.e., determine compass direction. Experiments have shown that the biological compasses of most migratory birds is based on the stars and Sun. Some species (e.g., the common cuckoo) have an inborn sense of orientation. Others, such as the white stork, simply follow more experienced conspecifics on their migratory route. They are thought to “draw” a cognitive map on their first transcontinental flight which they consult and update on all subsequent trips. This mental aid allows them to stay on track even in cloudy conditions, when the Sun and the stars are out of sight.

Madagascar hissing cockroach

One of the largest species of cockroach in the world. It has six jointed legs and two long antennae. Unlike most other species of roach, this species is wingless. However, it is an excellent climber. “Hissers” are omnivorous but feed mainly on dead wood and fruit. Males can be distinguished

from females by the pronounced “horns” on their pronotum. In the wild, nymphs remain in close physical contact with adults for extended periods of time and munch on their extrements to obtain bacteria needed for digesting proper food, so they must not be separated in captivity either. The hissing sound is produced in emergency situations by forcefully expelling air through specially adapted respiratory openings. Several closely related species are capable of hissing but the Madagascar hissing cockroach is probably the best of all, making a very specific sharp sibilant sound.

“Hissers” gain the ability of hissing after their fourth ecdysis. The males establish their dominance and defend their territory in a rather spectacular way, pushing each other with their large tubercles, while vocalising fiercely. They also produce a special sound for attracting females.

Cockroaches kept as pets (such as Madagascar hissing roaches) do not survive for long after escaping in homes cleaned on a regular basis. Even though they can go without food for several weeks, their condition gradually deteriorates until they become weak and die. Of the more than 4,500 species of cockroaches known to science, as few as nine are potential pests that may invade apartments, the great majority (i.e., approximately 4,491 species!) avoids any contact with humans.

B) Animal needs

All animals have a right to a happy life. For their well-being five prerequisites must be fulfilled:

1. To ensure that they can live a life without experiencing thirst, hunger or nutritional deficiencies, captive animals must be granted constant access to drinking water and must be offered a well-balanced, healthy diet.
2. To ensure that they can live a life without experiencing discomfort, captive animals must be protected against extreme weather conditions and other hardships, and must have constant access to a cozy resting place.
3. To ensure that they can live a life without experiencing pain or diseases, the health of captive animals must be regularly monitored and at any sign of illness strong measurements must be taken.
4. To ensure that they can fully express their natural behaviour, captive animals must have access to enough space, must be maintained under proper conditions and must be given opportunities of socializing with conspecifics.
5. To ensure that they can live a life without any suffering, captive animals must be maintained free of fear and stress.

Resilience: The ability of flexibly adapting to and coping with new situations.

More information on the topic:
http://www.mme.hu/a_madarvonulas
http://zoorope.hu/a-kornyezetgazdagitas-tortenete/
http://www.tani-tani.info/fokuszban_a_reziliencia
http://www.allatkertialapitvany.hu/orokbefogadhato-allatok/tihamer
http://www.jgypk.hu/mentorhalo/tananyag/kornyezetetikaV2/8_fejezet_llatvdelem.html

5. module: Ecology and group dynamics (systemic thinking)

The purpose and the duration of the module	The understanding of the complexity of cohabitation (at the level of nature / society / communities / etc.), and the fact that everything relates to everything. The understanding of the phenomenon of mutual dependence, and co-dependency. Duration: 3-4 hours
Topics to be discussed	• Ecology, ecological services, trophic cascade • the understanding of group dynamics processes • different roles and strategies that can be fulfilled in a group (e.g.: self-sacrifice, altruism) • nutritional strategies, specialists and generalists
Detailed schedule of the activity	15 minutes Energising Game 30 minutes Lecture – ecology, ecological services, trophic cascade 30 minutes Game: creating a food chain 10 minutes Break 5 minutes Energising Game 70 minutes the tragedy of the commons – complex simulation Game 15 minutes creating a common still image/ sculpture based on the daily experiences

Detailed description of the activities in the module

1. Game: creating a food chain

Time needed	Number of people in the group	Age	Tools
15-20 minutes	can be a whole class, max. 30 people	it is recommended for any age group	neck-carry flashcards with animals representing different species

We prepare a chain from at least 5 different flashcards, e.g..: plankton, krill, penguin, leopard, seal, orca. We distribute the cards among the players, so that each player gets one card, but the number of cards describing the given animals is not identical: the more we are moving towards the apex predators the least cards we have of the given species among the players. The game starts on a sign, and the players have to create food chains. Since there are only a few apex predators, they will realise that the chains may contain more cards showing mass nutrition animals, i.e. chains without predators can form complete chains. We shall discuss the network structure of the food chains, their role, their vulnerability, co-dependency, the ecological roles of the species and the process of the spreading of pollutions through the network.

Variations:
We place a piece of soft cloth on every player's head, which symbolizes e.g. oil pollution. We act the food chain, i.e. everybody consumes its own animal-food while putting the pollution of the prey on his/her head. We discuss whether the apex predator manages to avoid the environmental disasters.

A different game to deal with the topic:

- **Material needed:** pictures of species in different food chains (producers (plants), herbivores, predators, apex predators, species that deplete), string/thread ball
- **Purpose**: to get to know the significance of the food webs, and the role of every single species in the balance of nature.
- **How to play:** Members of the group form a big circle. Everybody chooses a picture. The team leader gives the thread to the hand of the producer then asks who can eat him. It is possible to help with different questions if the group cannot find the solution. If they get it, the team leader leads the thread there. We go through the different levels in order. The apex predators can be consumed by the ones that deplete them. The inorganic substances produced by the ones that deplete are utilised by the plants. And the cycle starts again from the beginning. One player can get the thread more than once. The game is played until everybody has the chance to get in one food chain at least. In the end we have one web-like, strong round network. This network symbolically maintains the balance in nature. Then we should see what happens if one species disappears from the area: the players let the thread loose from his/her hand. With this the network that maintains the balance in nature weakens. With the disappearance of every further species the network gets even weaker and it won't be able to fulfil its role.

Reflexion questions:

- How do the elements of the created system depend on each other?
- Is your role important (the animal's role on your flashcard) in the system?
- Does the system have an element, which can be omitted, or is insignificant?

2. The tragedy of the commons (complex simulation Game)

Time needed	Number of people in the group	Age	Tools
60-100 minutes (but with only a few participants it takes 15-20 minutes)	can be a whole class, max. 25-30 people (it is worth playing it in 4 or 6 groups)	13-29	coloured sheets of paper, coloured result sheets, and a flipchart sheet with the scoring rules (or a small card for each group with the scoring rules), another chart to record the scores (it is very important that the group cannot see it, it is only revealed at the end of the game)

Depending on the number, 6 (3-5 peoples) groups are formed, which are situated at a distance from the other groups, preferably in a way that they cannot hear each other.
Since there are a number of rules, it is important that everybody should pay attention at the beginning of the game when the rules are announced. These groups are the families, who live near

the commons. Every family has two cows, which they send to graze every day. Because the amount of grass is limited on the pasture, the families have to discuss every evening how many cows they are going to send to the common pasture to since it will determine how much milk their cows are going to give that evening. Every evening their intake can be between 0 and 8 litres of milk. It is important that every family must send at least one cow every day, but they cannot send more than two cows.

After this, every family picks one of the 6 different coloured sheets, on the bases of which they will get their sheets of the same colour:

- two identical small sheets with the following inscription: 1, 2 (they should drop one of them in the common box at the beginning of the round to show whether they are going to send one or two cows to the pasture that day)
- a results sheet of the same colour, where they are given a name based on the colour, and at the end of each round this is how they will find out how much milk their cows gave in the given round at the end of the day.

The game lasts for 10 days (rounds), where the families have to discuss at the end of every day and to decide whether to send one or two cows to graze the next morning. For that they will get two minutes in each round as time for discussion. Every family has to choose a family-person, who can represent them. Since the families live a long way away from each other, it is only after every 3rd day (therefore after day 3, 6 and 9) that they have the opportunity for the representatives of the families to gather in the middle of the circle at the meeting of the families to discuss their problems. On these occasions they may even agree how to act the forthcoming days. For this they get 3 minutes, after which they return to their families. That is the only time when the families can talk to one another.

Then we shall show the results chart (for 6 families), we display it in a place where players can see it well during the game.

number of cows (number)		**1. family**		**2. family**		**3. family**		**4. family**		**5. family**		**6. family**	
1	**2**	cow	**milk (l)**	cow	**milk (l)**	cow	**milk (l)**	cow	**milk (l)**	cow	**milk (l)**	cow	**milk (l)**
6	**0**	1	**6**	1	**6**	1	**6**	1	**6**	1	**6**	1	**6**
5	**1**	1	**4**	1	**4**	1	**4**	1	**4**	1	**4**	2	**8**
4	**2**	1	**3**	1	**3**	1	**3**	1	**3**	2	**7.5**	2	**7.5**
3	**3**	1	**2**	1	**2**	1	**2**	2	**7**	2	**7**	2	**7**
2	**4**	1	**1.5**	1	**1.5**	2	**4**	2	**4**	2	**4**	2	**4**
1	**5**	1	**0.5**	2	**1.5**	2	**1.5**	2	**1.5**	2	**1.5**	2	**1.5**
0	**6**	2	**0**	2	**0**	2	**0**	2	**0**	2	**0**	2	**0**

Nobody knows how many cows the others have sent on the given day; they can only see the amount of milk at the end of each round. Questions can be asked before the beginning of the game.

The course of the game: 2 minutes' family discussion time, decision, then announcing that the morning has come. Then everybody drops either number one or two. The results sheets are collected. Then the leader of the game writes the results on his big results board (the players cannot see it), then writes their daily intake on everybody's sheet. After this, everybody gets back their sheets (somebody either distributes them or they take them from a common place). Then a

new round starts. After the 3rd round, the game stops, and the family-persons have a chance to negotiate.

It is important that the leader of the game can decide at the beginning of the game which version he/she chooses:

- A version: he/she gives no instructions to the families on how to decide the number of cows they want to send to the pasture (in this way during the game they can carry out a more serious discussion on economic and moral issues)
- B version: he/she declares that the aim of every family is to get the biggest possible intake.

Game "A" can go on for several rounds, but at least 10 rounds are recommended.
The announcement of the results of Game 'A" is followed by a discussion.

Variations:
for 4 families

number of cows (number)		**1. family**		**2. family**		**3. family**		**4. family**	
1	**2**	cow	**milk (l)**	cow	**milk (l)**	cow	**milk (l)**	cow	**milk (l)**
4	**0**	1	**4**	1	**4**	1	**4**	1	**4**
3	**1**	1	**3**	1	**3**	1	**3**	1	**6**
2	**2**	1	**2**	1	**2**	1	**5**	1	**5**
1	**3**	1	**1**	1	**2**	1	**2**	2	**2**
0	**4**	1	**0**	1	**0**	2	**0**	2	**0**

Pitfalls and experience:
A live debate can emerge at the end of the game; therefore, it is important for the game leader to maintain the order in the game and to make it possible for the emotions to come to the foreground. In general, the following topics may arise: economic theories, algorithms, examples from real life, intense feelings, moral questions, environmental awareness, long term interests, poverty, and wealth etc., which are worth discussing for a longer period of time with the group.
At the end of the game and the discussion it is important for the game leader to announce that the game is over, and from then on the participants do not play their roles, they have to return to reality.

Further reading on the subject: Garrett Hardin's article: The tragedy of the commons.

3. Creating a common still image/ sculpture

Time needed	**Number of people in the group**	**Age**
15 minutes	can be a whole class	13–29

Participants stand in a circle; we ask them to choose the most powerful experience of their day. We are going to make a group of sculpture from them; we are going to use our bodies to represent our experiences in the form of a sculpture.

We mark the middle of the circle, as the place for the sculpture. It is not allowed to use any equipment, but we can get linked to one another. People step in the circle one by one, creates his/her own sculpture silently. It all lasts, until the last person takes his/her own place. Then we ask everybody to look around without changing his/her position (the leader may take a photo). Thanking for the day, everybody can leave the sculpture and we can finish the day.

Worth to know: background information about the subject

A) Ecological interactions

In some way or another, all living things are connected to other living things. The relationships between animals and plants (consumers or producers) are often extremely complicated. A food web is a natural interconnection of multiple food chains and a graphical representation of what-eats-what in an ecological community.

The interconnections between species (and populations) are the results of the fact that every place on Earth offering suitable living conditions is inhabited by more than one species. Populations of species sharing the same biotope always influence, to a greater or lesser extent, each other's lives. This effect may be either direct (e.g., between a predator and its prey) or indirect (when a thick canopy casting shadow on the ground makes it impossible for shrubs to grow in the forest).

Types of interactions between species (populations):
According to the effect they exert on a given population, interactions can be classified as *beneficial* (+), *detrimental* (-) or *neutral* (0). Consequently, the interlinkage between two populations can be described as (0 +), (0 -), (+ +), (- -) or (+ -).

Six basic types can be recognized:

1. Competition (- -)

   Competition between animals for limited resources
   - intraspecific (within populations)
   - interspecific (between members of different species)

2. Mutualisms (+ +)

   The participants are not in physical contact with each other. Mutualisms are defined as interactions between organisms of two different species, in which each organism benefits from the interaction in some way. These types of interaction are common and ubiquitous throughout all ecosystems. May involve either the exchange of resources, such as shelter, food and other nutrients, or they may involve the exchange of services, such as protection, transportation or healthcare.

   Sometimes mutualisms are *symbiotic* relationships. In such cases, the two species live in close proximity to each other for part or all of their lives; however, not all symbiotic relationships are mutualistic.

3.Commensalism (0 +)

   Commensalism is a type of relationship where one of the organisms' benefits greatly from the symbiosis. The other is not helped but is not harmed or damaged from the relationship. In other words, this is a one-sided symbiotic relationship. Example: the relationship between cattle egrets and cattle or the cattle egret will eat insects that have been disturbed when the cattle forage.

In some of these commensalism relationships, the organism that is reaping the benefit will use the other for protection or transportation. Example: a hermit crab taking up residence in an empty seashell or a spider building a web on a tree.

4. Predation (+ -)

Predators have a regulatory effect on the populations of their prey.
e.g.: lynx–snowshoe hare cycle

5. Herbivory (+ -)

Relationships between herbivorous animals and food plants.
- large-bodies herbivores (antelopes, elephants, buffaloes, etc.)
- small-bodied herbivores (mostly phytophagous insects)

Plants:
- their edibility is determined by secondary, toxic substances rather than effective, stimulative compounds (e.g., sugars).

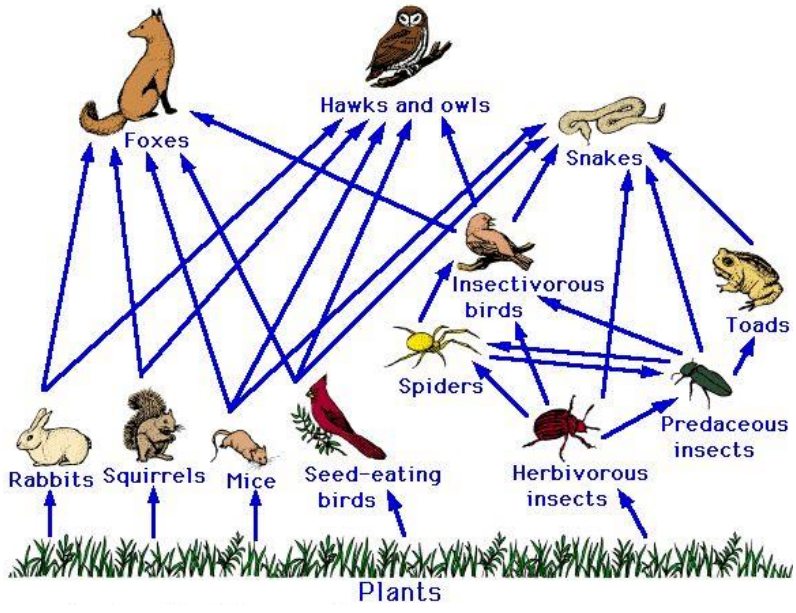
6. Parasitism (+ -)

Parasites (pathogens):
- get their food/nutrients from one or more host organism(s)
- do not cause immediate death but inflict some damage
- close, special relationship, dependence on host organism
- ability to infect or damage (virulence)
- host immune responses
- evolution of resistance and susceptibility

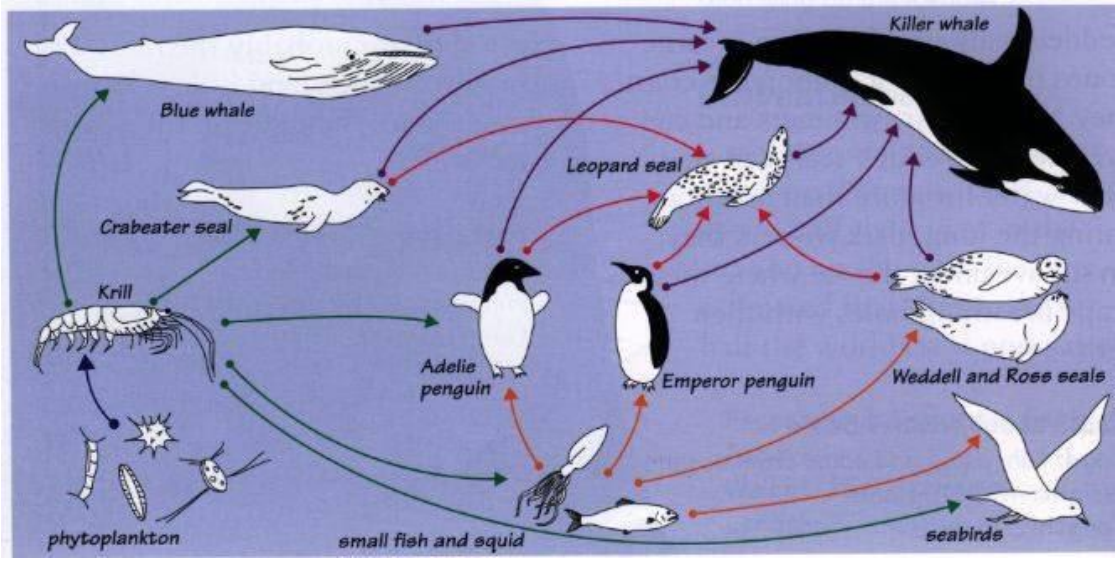
Examples for food chains:

- tropical rainforest food chain: leaves and fruit of trees → parrot → howling monkey → harpy eagle
- savannah food chain: grasses → antelope → cheetah → lion
- temperate deciduous forest food chain: oak tree → oak beauty (moth) → tit → long-eared owl → fox

Example for a simple terrestrial trophic web:



Marine food chain:



B) Interdependence of living things: trophic networks and relationships between species

Trophic cascade theory

A study conducted by an international team of researchers revealed that the disappearance of large carnivores and herbivores (the so-called megafauna) has a profound effect on terrestrial, freshwater and marine ecosystems. The results indicate that the extinction of apex consumers exerts a cascade effect (i.e., triggers an inevitable and sometimes unforeseen chain of events) on food web dynamics worldwide, especially when exacerbated by land-use and climate change, habitat loss and environmental pollution.

There is clear evidence supporting that top-down cascades are powerful and widespread trophic cascades in nature. “The bottom line is that the top-down control can be positive as well as negative at the same time. Killer whales have a negative effect on sea otters, which, in turn have a negative effect on sea urchins. However, by removing their predators, the whales positively affect the sea urchin population. The propagation of an indirect mutualism between non-adjacent trophic levels by a predator–prey interaction between adjacent trophic levels is regarded as an important signal for top-down control in food webs.”

What are apex consumers?

Apex consumers are animals such as big cats, wolves, buffalo, sharks and large-bodied cetaceans. The extinction of large carnivores and herbivores has grave consequences for a given ecosystem: the frequency of infectious diseases increases, invasive species take hold, vegetation and soil characteristics, water regimes and even atmospheric processes get affected.

Examples for the effects of the decline of top consumers

- The reduction of lion and leopard numbers led to an increase of baboon populations throughout Sub-Saharan Africa. As the monkeys searching for food started to target human habitations, doctors noticed a gradual increase in intestinal parasitic infections among people.
- The reintroduction of wolves in Yellowstone National Park had a positive effect on poplar numbers and secondarily also on beaver and songbird populations.
- Industrial-scale whaling in the 20th century "pulled out" large numbers of plankton-feeding cetaceans from the oceans. These animals are now known to facilitate carbon absorption by producing faecal plumes that stimulate the growth of phytoplankton. The result: each year about 105 million tons of extra carbon dioxide get released into the atmosphere and contribute to climate change.

"Top predators in the classical sense are no prerequisites of a trophic cascade," so highly similar processes take place in Lake Balaton as well as a puddle and even in our own intestines. However, large-bodied, well-known top predators are probably more important from this aspect because they cannot easily be replaced by other species and their extinction causes more problems. There is more room for play (redundancy) on the middle and lower levels of the food web. Then again, one should not forget that top-down effects are nearly always coupled with bottom-up effects. There is nothing mystical or secretive about cascades, it is just that the time scale on which ecological processes typically occur differs from the one we humans are used to: we cannot truly comprehend effects that take decades to appear.

Further reading on the topic:

http://www.origo.hu/tudomany/20110718-oroszlan-farkas-balna-eltunesuk-befolyasolja-az-egesz-okoszisztemat.html

https://tudasbazis.sulinet.hu/hu/szakkepzes/egeszsegneveles/kornyezettan/okoszisztema

http://www.csrsziget.hu/content/mi-a-csr

http://www.hrportal.hu/hr/mitol-lesz-hatekony-a-csapatepites-20101011.html

http://www.kovet.hu/vallalati-szolgaltatasok/a-merlegeles-szintje/erintetti-terkep-megalkotasa

http://www.osztalyfonok.hu/cikk.php?id=178

6. module: Similarities and differences between the behaviour of humans and animals

The purpose and the duration of the module	To find common roots, parallels between the behaviour of animals and humans and to identify the differences • problem solving ability • logics • communication Duration: 4 hours
Topics to be discussed	• the biological roots of human behaviour • the evolutionary bases of human behaviour
Detailed schedule of the activity	15 minutes Methodological questions-answers 15 minutes Energising Game 25 minutes Transfer of knowledge – the structure of ethological observations 55 minutes Individual/pair work exercise: the observation of animals based on a given set of aspects or with the help of one's own hypothesis 10 minutes Break 5 minutes Energising Game 85 minutes Individual and pair-work discussion of the observations in a small group (15 minutes) Sharing the experience of the small group in a big group Looking for human parallels/contrasts in relation to the results of the observations in a small group Discussion of the lessons learnt in small groups in a big group 30 minutes Transfer of knowledge - Human ethology

Detailed description of the activities in the module

1. Methodological questions-answers

Time needed	Number of people in the group	Age
15 minutes	can be a whole class	13–29

We should provide an opportunity one morning for the participants to discuss questions raised the previous day with their trainers. Then people will have a better understanding of the happenings of the previous day and will be able to ask more profound questions. This will also give a chance for latecomers to catch up with the others.

2. Energising Game - BioActivity

Time demand	Group size	Age	Tools
10-15 minutes, which can increase	can be a whole class, max. 25-30 people	with smaller modifications this activity can be recommended to any age group	flashcards containing concepts, with concepts or names of species such as fang, resilience, brown bear etc., depending on what topic we would like to work on with the students, as well as a stopwatch

We divide the players into several groups (ideally 4-5 people) with each group having a volunteer, who starts the game. He/she picks a card and tries to act (pantomime) the expression the card shows. As soon as somebody finds out from the group, he/she will become the next person to do the same after having picked a new card. The group which manages to act/show the most expressions on the cards, will win the game.

Variations:
Rule 1: more difficult, longer

- every card has 5 colours (pink, blue, green, yellow, orange), 5 categories, every work is a "compound word" but has a specific meaning (e.g.: polar bear, snow leopard, etc.)
- using the rules of the Activity board game, but with **modifications!** - (pantomime - describe - draw)
- here the rules are as follows: *pink-blue* colours - pantomime, *green*- drawing, *yellow-orange* – describing with only 5 words the given concept/animal/etc. (linking words do not count!)
- we need a game master, who coordinates the whole game (knows the rules and uses the stopwatch etc.)

Rule 2: a shortened version of the previous game

- we mainly rely on the rules of the Activity game, but now only the pantomime part
- the words get difficult towards the direction of *pink*-> orange
- during the game we choose to use the words of the *X colour*
- in groups, we play 2-4 complete rounds, each solved card is worth 1 point
- quick, easy, cheerful, relaxing game, which can be good in get-to-know situations, team building, and in getting to know ourselves, besides we can learn a lot of things about the diversity of animals and plants
- we need a game master, who coordinates the whole game (knows the rules and uses the stopwatch etc.)

3. Ethological observation

The aim of the activity is to demonstrate the execution of an ethological (field) research from preliminary observation through asking questions and collecting data to the analysis of data. The task is to continuously observe a living being or a group of living beings for 20-30 minutes. In order to set up the etogram and to prepare the examination chart, we use the chart designed to the observation of the gorillas at the Budapest Zoo as a model. Since for the activity any species that can be used that can be found in our environment, therefore it is best if people involved in the activity set up their hypothesis and their criteria. It is important to write down precisely what the

initial hypothesis is and what method we want to apply. Some ideas for the observation: the use of space of the observed animal, communication events, the method to approach the food, its order, making contact, how frequent certain element of behaviour is etc. The chosen species can be anything depending on where the group is situated (earthworms, lizards, hedgehogs, bees, wasps, chinch bugs etc.) and of course even human beings.

Some advice in order to find the topic of observation:

- do not hurry, look around carefully paying attention to where, and with which animal you can see notice anything interesting, behaviour,
- if you fell you have seen something interesting, stay there and keep watching the animals for another 10 minutes whether they will show signs of the given behaviour again, whether it still lasts,
- choose an active species,
- you can observe the way they use space (here it or they like to stay – ground level/canopy; water/shore; shade/sun; close to visitors/away from them); they can observe individual forms of behaviour (consuming food, cleaning themselves, relaxing etc.), as well as social interactions.
- it is very important to define the forms of behaviour to be observed accurately (where, what, who/what the animal is targeting in its move)
- draw pictures, take photographs,
- in order to set up the list of facts, it is necessary to introduce the given observation topic and the species; to describe the method; and to assess the result.

A model for the criteria of observation through the observation of the gorillas at the Budapest Zoo:

Gorillas are very similar to humans in many of their characteristics as well as in their social relationships. They are very similar when they are happy, sad, play or look after their offspring. Your task is to observe the behaviour and actions of a gorilla chosen by you for 15 minutes! Put an X in every minute to the activity which you observe

Minutes:	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
plays															
sits															
feeds															
gives a sound															
walks on its phalanges															

lies on the ground															
approaches another gorilla															
climbs something															
shows off its strength															
chased by one of its mates															
touches one of its mates															
goes out to the enclosure															
comes in from the enclosure															
looks after a younger mate															
makes contact with the visitors															

Further chart models:

Elements of behaviour	time	time	time	time	time	time	time	time	time

The frequency of the examination:

Species/ Time	Behaviour	Behaviour	Behaviour	Behaviour	Behaviour	Behaviour	Behaviour	Behaviour	Behaviour

The following data should by all means be recorded in the observation report to be prepared:

- name of species
- description of location
- date of observation
- description of weather conditions
- description of field characteristics
- working or initial hypothesis (question formulation)
- data collection method
- description of subjects to be observed or their individual identification
- description of behaviour elements (behaviour-based coding)

Aspects of information processing:

- What kind of animals have you observed? How did your observations compare to your preliminary expectations?
- What was your most interesting observation? Why that?
- Which important question does the observed phenomenon pose to you or humanity in general?
- Do you know any animal–human parallels that touch you deeply for some reason?
- Which question does this parallel pose to you personally/to the community/to the society? Are there any more questions to which you seek answers for?

Worth to know: background information about the subject

A) Elements of behaviour

Animal behaviour is a process which, according to ethologists, can be subdivided into discrete parts, the so-called **elements of behaviour**. Elements of behaviour may be non-overlapping, e.g., a hen cannot sit and stand at the same time, or overlapping, e.g., a hen can pick at seeds while standing. The recognition that behaviour is built up of fundamental elements had a major impact on the science of ethology. Research ethics require methods to be exact, definitions accurate and measurements reliable, repeatable and reproducible. In order to be able to engage in the study of animal behaviour, a few concepts must be clarified first.

An element of behaviour is thus a fixed action pattern characterizing a given animal (species), i.e., the smallest unit of behaviour. It is important to stress that even though the elements of behaviour may alter during ontogeny, be it due to environmental effects or learning, their basic properties remain the same and each of them is representative for an individual at a given age. A

series of elements of behaviour typically having similar functions is called a **unit of behaviour**. An example is preening in birds: the maintenance of feathers as a unit of behaviour involves several elements, such as nibbling or stroking the feathers from base to tip, fluffing up feathers, applying the secretion of the uropygial gland to the feathers, etc. A unit of behaviour may also be a "condition" when the animal is "not doing anything", e.g. hibernates.

A species ethogram is a catalogue of species-specific behaviours, describing the elements and their functions. An important criterion for preparing an ethogram is that the elements of behaviour must be mutually exclusive and objective, and the inventory must not offer any subjective functional inferences as to their possible purpose.

Description of behaviour

There are major differences between a **formal** and a **functional description**. The former is more objective because the recorder does not offer explanations for the observed behaviours. A formal description is usually a greatly simplified list of the elements of behaviour, e.g., the animal is standing, sitting, lying, or looking to the right, to the left, extending its neck, inflecting its neck, etc. As a plus, the observer may record the movements or the position of the animal (or a group of animals) within a given area or relative to a certain terrain feature (close to, far from it).

However, when we already know something about a certain animal (based either on first-hand experience or on publications of others), preparing a detailed formal description may prove difficult or even impractical. This is when a **functional description** dealing with the effects of behaviours offers better alternatives. In this case, behaviour is divided into discrete elements having a concrete function, e.g., the animal is eating, fighting, mating, collecting nest material, playing, grooming its mate, etc. It is easy to see that functional elements of behaviour are in fact sequences of formal elements. For instance, fighting involves several individual moves that can each be described, counted or measured. So a functional description is essentially a condensation, a simplification which, in most cases, makes the work of an ethologist much easier. However, this condensation also has its drawbacks.

It may well happen that by labelling functional categories we conceal/overlook important details of behaviour. For instance, when comparing the behaviours of the members of a wolf pack, functionally describing their behaviours ("feeding on prey") does not adequately differentiate the way a dominant and a subordinate individual approach their food (the former parading with head up high, the latter crawling). Another risk of the functional approach is to record unconfirmed suppositions that can lead to erroneous conclusions.

In order to arrive at the proper **sampling method**, the spatial and temporal boundaries of our study must be determined. In terms of **spatial boundaries**, we can divide the arena to be monitored into two (equal-sized) parts and record the behaviours of animals in each (or note the numbers of animals present in either of them). As to **temporal boundaries**, we can, for instance, take a look at the animals every minute and record their actual behaviour (or the number of individuals displaying a certain element of behaviour, etc.). A special sampling method called **behaviour coding** is used when we want to record the occurrence of a certain element of behaviour, irrespective of its spatial or temporal boundaries (e.g., mating in baboons). Coding is the method of choice when a particular element occurs relatively rarely. For common elements temporal boundaries must be set.

Whom or what to watch for?

If we intend to monitor concrete individuals, we must be able to recognize those particular specimens throughout our study period. Generally, we can make a distinction between focal and group observation. **Focal observation** means that we pick a single individual (or a pair, etc.) from the group for analysis. It is important to remember that the individual to be brought into focus must always be randomly chosen from several specimens meeting certain criteria determined in advance. In case of **group observation,** the behaviour of the entire group is of interest to us so we must record the behaviours of every member of the group present in the arena. This method is particularly suitable for observing "conditions" (e.g., for recording whether animals are awake or asleep).

The whole textbook and further considerations can be downloaded here:
http://elte.prompt.hu/sites/default/files/tananyagok/EtologiaGyakorlatok/book.pdf

B) Presentation on human ethology:

Human behaviour is extremely complex. It is influenced by biological determinations, emotional mechanisms, cognitive processes, and cultural as well as social and historical factors. However, in spite of its complicated regulation also the constant modification of human behaviour patterns and strategies, similarly to those of animals, is subject to evolution. The various behaviours have vastly different adaptational values. With reference to the topic it should be kept in mind that the study of human behaviour is based on evolutionary theory and as such is challenged by a great number of people. The genetic determination of our behaviours (the subject of this novel discipline of studying human behaviour) and the role of socialization (i.e., growing up in a given social and cultural environment) in shaping them are yet unresolved questions. Scientist generally agree that both have some influence but disagree about the extent.

We do not wish to engage in this dispute here, our only aim is to draw attention to this highly interesting issue by citing examples from Tamás Bereczkei's book "Evolutionary psychology" (Osiris Kiadó, 2008).

Questions of group organisation – group size, group identity, xenophobia

Belongingness is a fundamental emotional need in humans. The Social Brain hypothesis proposed by British anthropologist Robin Dunbar in 1998 argues that primates need large brains because their form of sociality is much more complex than that of other animals. After studying pre-industrial societies and comparing neocortex size and group size in apes, Dunbar predicted a natural social group size for humans to be around 150. This is the cognitive limit to the number of people with whom one can maintain stable social relationships in which an individual knows who each person is and how each person relates to every other person. Ancestral tribes (traditional hunter-gatherer social groups) typically consist of about this many members. However, people have much fewer—only 10–15—friends with whom they form closer than average bonds, irrespective of their cultural backgrounds. Later studies have shown that the size of an individual's living group or personal social network also correlate with the size of core regions of the brain.

Belonging to a group determines the identity and self-estimation of individuals. This makes us know who we are and where we belong, and the way others in the community see us decides

whether we are “good” or “bad.” In the old days people were generally born into a certain reference group, today we have more choices. Conformity and group loyalty are natural human tendencies based on the deep desire and the supposition arising from that desire that things must go as they go in our group. Compliance to principles is another product of group loyalty. Rules guarantee the integrity of groups and make living calculable for group members. On the other hand, loyalty to one group means a rejection of outsiders because our own group not only defines who we are, but also tells us who we are not. We are positively prejudiced toward our “own people” and negatively toward everyone else. Whereas we typically perceive the dissimilarities within our group as smaller than they really are, we tend to exaggerate differences between “us” and “them.”

Points of interest:

- Xenophobia or the fear and distrust of that which is perceived to be foreign or strange is a dangerous by-product of group loyalty. When a group is unsure of its own identity and self-estimation or feels itself threatened for some reason or another (e.g., due to an economic crisis), its members often react hostile towards an outgroup. The own group is then typically perceived as superior to all others, whereas the “opponents” get devalued equally strongly and appear as negative or even fearful in the eye of the reference group.
- Even though we might think that *Homo sapiens* is a rather aggressive species, this is not the case. As Hungarian ethologist Vilmos Csányi points out, repression is a basic prerequisite of operating effectively in groups: locked up in a subway car, chimpanzees would never behave as “civilized” as we do. Another experiment with babies has shown that they have an innate spirit to cooperate and only at a later age do children start making distinctions between subjects, after understanding and accepting the norms of their group.

More about the topic:

http://www.gorillazoona.hu/
Bereczkei Tamás: 1998. A belénk íródott múlt. Budapest-Pécs, Dialóg-Campus
Bereczkei Tamás: 2008. Evolúciós pszichológia. Budapest, Osiris Kiadó
Csányi Vilmos: 1999. Az emberi természet. Humánetológia. Budapest, Vince Kiadó

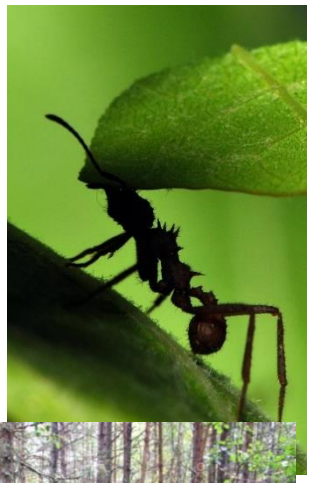
7. module: The rules of cohabitation

The purpose and the duration of the module	Cooperation, non-cooperation. Getting to know how to regulate social co-existence, communal and social rule-making. • cooperation vs. competition • problem solving ability • logics • communication Duration: 4-5 hours
Topics to be discussed	• rules of social co-existence • cooperation, competition, enforcement of rights, altruism, assertiveness, aggression • flexibility of the system of rules (chaos and rigidity) • personal relationship to compliance, adaptation
Detailed schedule of the activity	10 minutes Energising game 50 minutes Group games based on cooperation: Raid in the ant hill 30 minutes Transfer of knowledge – Adoption in the world of animals 10 minutes Break 100 minutes Construction of the green bridge 30 minutes Sharing personal experience of the day 30 minutes Methodological discussion

Detailed description of the activities in the module

1. Group games based on cooperation: Raid in the ant hill

Time demand	Group size	Age	Tools
50 minutes	8-24 people	13-29	one or more bigger objects, a block (can be chairs); video of an army of ant on the run



The group becomes a colony of ants and they have to escape from the room as quickly as they can (for example because it is going to rain soon). The room must be small enough so that escaping should be a difficult task (if the room is big, we should make it smaller by e.g. placing chairs in a circle).
The group leader measures how quickly they can leave the room without making any mess (the colony of ants should remain intact/unharmed). The group may try it two or three times to become quicker and quicker.
After two-three attempts, we shall make the task more difficult, e.g. pl.:

- We place a block in a disturbing place (in the middle of the room, near the door…)
- We mark certain ants, which have some difficulties (e.g. injured/old ant, which can only move by jumping on one leg; blind ant, who is blindfolded. Selfish ant, who would like to leave the room first, etc.,)

After the game, members sit in a circle to discuss the task. We ask them what they have experienced during the attempts one after the other: Has their performance improved? What helped them to become quicker? What were their persona motivations (e.g. “to get out as quickly as possible”; “to help old ants”, etc.)? The discussion is facilitated by the group leader.
After the game the group watches a short film together about a colony of ants swimming across a river (https://www.youtube.com/watch?v=A042J0IDQK4&t), and they discuss what we can learn from the ants in terms of efficient cooperation.

2. Construction of the green bridge

Time needed	Group size	Age	Tools
80-90 minutes	8-24 people	13-29	Material that can be used for “bridge construction” in a great quantity: cardboard paper, cardboard boxes, drinking straws, Scotch tapes, strings, etc. scissors, box cutter. A 10-12 cm long beast cut out from paper or a smaller stuffed animal (deer, bear, etc.), which symbolises beasts.

The group leader tells the “frame story” of the game: members of the group will be divided to be the communities of two villages. These two villages have such a bad relationship with each other; they would not even talk to each other. From both villages only one person is willing to talk to the representative of the other village. (They will be the spokespersons of the villages.) At the same time, both villages are really animal-friendly. Now that a motorway has been built between the two villages, both villages find it important to build a green bridge between the two villages for

the wild animals. However, neither village would like to work more than the other; therefore the communities are only willing to build exactly half of the bridge only. The group leader then divides the group members to form the two villages. Each community appoints their own spokesperson.
The two villages have to build an approximately 150 cm long, at its highest point a 50 cm high bridge, on which the beasts can cross the road. Both groups build half of this bridge. The two groups work separately from each other; they cannot see each other's work and cannot even talk to each other during the construction. Only the two representatives can talk to each other after every 8th minute for two minutes. On such occasions they can negotiate their projects. Time is measured by the group leader. The duration of the construction is 5 times 10 minutes. (Every 10-minute round consists of two parts: villagers work for 8 minutes, spokespersons negotiate for 2 minutes.)
After the end of the 5th round the village communities meet and assemble the two half bridges. The paper beasts or stuffed animals which symbolise the wild animals "walk across the bridge" to test its feasibility.
After the game, participants discuss their experiences about the game. The group leader facilitates the discussion:

- How did the village communities work? How did they distribute work within a community?
- How could the villages negotiate with each other? How did the spokespersons communicate with each other?
- How did the spokespersons communicate with their own village communities?
- How satisfied are they with the result?
- How satisfied are they with the work process?

Variations:
Several different roles can be given within a village community, for example: mayor, designer, animal expert, etc. With this the organisation of the work distribution can vary.

Worth to know: background information about the subject

A) Adoption in the animal world

"So many countries, so many customs," as the saying goes—and it feels right in this case, too. There is no universal rule governing the living world except for one: every living being wants to pass on its genes to the next generation. Among animals, adopting the young of others only makes sense if they are no complete strangers but biologically related to one of the foster parents, with whom they share a good part of their genetic material. In the old days, people made similar decisions when they took on to raise their godchildren in case the birth parents—typically their own flesh and blood, i.e., brothers or sisters, uncles or aunts—would die.

In a lion pride it is perfectly normal for females—usually blood-relatives—to suckle, clean and caress each other's cubs. This has several advantages: for one, the milk of every mother contains slightly different immune cells so the cubs get protected against a greater array of diseases; second, would any of the mothers suffer fatal injuries during a hunt, the aunts would raise her cubs as if their own. Also the males do not differentiate between the young, the more so because they have no idea which are theirs—not that it would matter much because they are mostly siblings anyway. However, they do not spend their energy on strangers: when male lions take over a new harem, they kill the pride's cubs, since they are not biologically related.

Rats act similarly. Individuals belonging to the same colony recognize each other by smell and females cooperate in raising the young. In captivity rats can be observed stealing each other's babies to satisfy their strong caring instinct. This is one of their secrets of success because every night is a hazardous gamble for these rodents: a single meeting with an owl, snake or ferret can

turn the babies at home into orphans. Solidarity saves them from starvation. However, before putting this act down as “humane,” we must know that all of it is controlled by pragmatism and instinct. In the time of famine, a rat would devour its own flesh and blood without hesitating, based on the very same rational consideration: if the mother dies, her progeny will perish too, but if she survives, she may have young again.

In canines living in social groups, such as wolves, African wild dogs and dholes, all pack members assist the dominant female in raising her pups. Altruism is an innate behaviour of our domestic dogs, too, which makes them highly suitable nannies for the young of other mammals. In zoos it is a fairly common practice to use lactating dogs for raising the cubs of big cats, such as lions, tigers or panthers. Some dogs go even further: experienced bitches often start lactating once any young mammal is placed on their tits, be it a pup, a kitten or a bunny. Also cat mothers have been seen nursing baby ferrets, squirrels and even ducklings, which—given that they are birds—do not normally thrive on breast milk.

It may come as a surprise then that hoofed mammals appear to care much less about their offspring. All females in a herd give birth at approximately the same time in order to minimize predation losses. New-borns are seemingly indistinguishable but each mother recognizes her own baby and kicks away every stranger trying to nurse on her. A parentless, bitterly crying calf will not be suckled by any cow, even by those that have lost their own young. In contrast, elephant seals forming large breeding aggregations frequently embrace “foreign” pups. The reason is that juveniles easily get drifted away in the billow of thousands of noisy pinnipeds, so females whose own pup got missing often adopt orphaned young.

Among our closest relatives, the primates are taking another’s baby equally untypical, though there are some exceptions. Some years ago, black-fronted titis were observed adopting a young originating from another troupe. In titi monkeys, it is the males whose duty is to take care of the offspring, the females only wean them. Additional examples include South American howler monkeys and even African chimpanzees. The most notable case was recorded in 2004, also in South America, in which a group of capuchins raised an orphaned marmoset baby. Otherwise, fostering the young of other species is wholly untypical for animals: only humans would do such a thing with greater regularity.

(Áron Mirtse, Budapest Zoo)

B) Ants on the move

We all have seen ants marching by thousands in an endless line over bare ground, through grass or in the leaf litter. They usually move in both directions on their path, sometimes only in one, carrying tiny, white “eggs” (larvae or pupae). These little insects can also often be observed crawling up and down on tree trunks.

If we crudely disturb an ant nest, for instance dig into it with a stick, we will see a lot of confused ants criss-crossing without an apparent purpose. But if we watch them longer, we will notice that they follow some kind of a system as if they had their own traffic regulations. For instance, they keep a safety gap and give way to each other.

Why are ant armies on the march? For multiple reasons, but mainly to gather food. How do they know where to search? The first *worker* starts off without a clear destination in mind: she just takes a random path. Has a go. Once she finds something edible, she returns to the nest with a mental map of her wanderings in her brain. On her way back, she makes shortcuts and leaves a scent trail. The ergates back home—when seeing that she brought nourishment—follow this scent trail to arrive at the food source. They consequently go after the strongest smell and strengthen

it further as they go. As long as there are pickings at the end of the line, the ants keep marching back and forth, reinforcing the shortest route.

Generally, ants have a poor sight and some species are even completely blind, such as the African *siafus* (also known as driver or safari ants), so they orientate by scent. This is why they get confused if we spray their trail with a rancid odour. However, after some random searching they will find the right track sooner or later.

More about the topic:

https://ligetmuhely.com/szitakoto/hangya-tomegkozlekedes/
http://www.rogersalapitvany.hu/phocadownload/ELENA_modulok/A%20hangyak2016_hu.pdf
https://444.hu/2015/05/28/a-hangyak-nem-hogy-soha-nem-kerulnek-dugoba-de-minel-tobben-vannak-annal-gyorsabban-kozlekednek

8. module: What should we learn from the animals

The purpose and the duration of the module	• What is worth learning from the animals, what is only worth observing? • What kind of social / community / personal opportunities for development can we discover by observing the animal world? • understanding the experience gained during the week • synthesising experiences at an individual and a group level Duration: 3-4 hours
Detailed schedule of the activity	15 minutes Methodological questions - answers 60 minutes Processing the experiences of the week (common, individual, making a mandala) 10 minutes Break 60 minutes Paper theatre, making a kamishibai 30 minutes performing tales

Detailed description of the activities in the module

1. Methodological questions - answers

Time needed	Number of people in the group	Age
15 minutes	can be a whole class	13–29

We should provide an opportunity one morning for the participants to discuss questions raised the previous day with their trainers. Then people will have a better understanding of the happenings of the previous day and will be able to ask more profound questions. This will also give a chance for latecomers to catch up with the others.

2. Processing the experience of the week

Making a mandala:

Time needed	Group size	Age	Tools
60 minutes	8-24 people	13-29	Participants collect the necessary tools from nature. It is common practice to use the objects to be found in the room spontaneously (for example, pencils, shawls, glasses, etc.)

The group sits in a circle. The group leader briefly introduces the preparation of a mandala: Mandala usually has a round or square shape, in which colours and patterns lead from the centre and form several different geometric patterns. The making of a mandala is a meditative practice,

a series of exercises built on introspection. The making of a mandala arranges forms and entity and synthesises the feelings and thoughts of its makers. Now we are inviting you to take part in the preparation of a common mandala. First, everybody should go out to nature on his/her own. You have one hour to walk and spend some time on your own. First, pay attention to yourself only and the surrounding environment. Focus on how your body reacts and on your emotions. What experiences, feelings have the activities and meetings with other people or with the animals evoked in you? Have you come across something that has had a bigger impact on you? Has anything been difficult for you? Has anything been an especially good experience? How did you find your group? What does it feel like for you to be part of this group? While you are paying attention to these questions, collect material from nature, pebbles, crops, something you find beautiful and which you would bring to a common mandala making activity. While making the mandala, we are going to display the different individual experiences in a common picture, in a common mandala. And now you can start, and we shall meet here at the same place in 30 minutes with your collected material. Group members leave, following the instructions, and spend half an hour contemplating in nature. They return in 30 minutes.

Group members sit in a circle again putting their material for the making of the mandala in the middle of the circle. The group leader gives the following instruction: Now, that you have returned with your meditated experiences and the objects for the mandala, you can slowly start to form the common mandala of the group from your material here in the middle on the floor. Relying on your feelings and the others, arrange everything in a big common picture that you have collected. The mandala that you make will create a unity of the experiences you have lived through individually and together as well. I ask you to work in silence without talking, paying attention to one another, in harmony. Following the instructions group members start working quietly paying attention to one another, the mandala in the middle, and continue working until everybody sits back to his/her place signalling that the group has finished making the common mandala.

After the common activity, the group sits in the circle looking at the mandala. The atmosphere in the group is expected to be cosy and intimate. Group members will have the opportunity to share the experiences of the week/past days they want in a big circle.

2. Paper theatre, making a Kamishibai

Time needed	Group size	Age	Tools
80-90 minutes (depends on the size of the group)	8-24 people	13-29	A3 sheets of paper, drawing equipment. Original wooden Kamishibai or Kamishibai/ paper theatre prepared from cardboard in advance

Group leader shows kamishibai, and how it functions, how it is used to read fairy tales and to perform fairy tales. Then he/she tell the group, that they will have the opportunity to learn how to invent a fairy tale based on their own experience during the activity.

Then the group leader asks the member of the group to look for a powerful experience, which they have had with animals and with which they would like to deal with during the invention of a tale. (For example: When I first met a dog; when bears attacked us in the forest; when I heard deer rutting, etc.).

Then group members get a few minutes to think about the details of their chosen stories:

- Where and with whom did you live through the story?
- How did you feel? What emotions came up in the story?
- How did your story unfold? How did it end?

- Why did this story become important for you?
- What did you learn from this experience?

Group members get time then to create tales form their own experience, and to make Kamishibai-illustration for them. While inventing the tales, group members can keep to their real experience or may divert from them, as well. The story can take on any form, but it is important that it must be told in no more than 1-2 minutes.

After everyone has finished inventing his/her tale, the group sits in a half circle forming a small stage at the missing part of the half circle and place the kamishibai on a table. Ever group member tells his/her story one by one to the others with the help of the kamishibai.

Variations:

- The groups can work in pairs or in small groups. They can merge their experiences with animals that they lived through separately or they can choose one among them.
- The group members can work in pairs or in small groups so that they use the activities, training modules they had together.
- If more people work on one story, they can complete their stories with short dramatic scenes, or after telling their stories, during the dramatic scenes they can work on them and have additional ideas.

9. module: Stereotypes, prejudice

The purpose and the duration of the module	Understanding the origin and impact of stereotypes and preconceptions, opportunities for their changing and banishing • awakening empathy on society level and in nature • introducing the colourful world of our language Time demand: 3–4 hours
Topics to be discussed	• stereotype, positive and negative prejudice • system of beliefs • discussion of personal prejudice, and beliefs
Detailed schedule of the activity	10 minutes energising game 15 minutes Lecture: Animal saving activity and rehabilitation at Budapest Zoo 120 minutes Owl pellet analysis and creative work 10 minutes Break 25 minutes Animal dating profiles 30 minutes Methodological discussion

Detailed description of the activities in the module

1. Animal dating profiles

Time demand	Group size	Age	Tools
15-30 minutes	at least 2 people	13-29	pictures of different animals, plants

The group leader introduces the game: This game is about how the animals are looking for a partner. Some animals are popular among their mates (for example, lions, dolphins, eagles), because they show themselves strong, splendid, beautiful, skilful, clever etc. among the others. Some other animals, however, find it difficult to find a partner due to their strange characteristics (for example, toads, slugs, ticks). Now you can help these “disadvantaged” animals. The group leader asks the group members to choose an animal, which belongs to the “disadvantaged” animals in the dating market for animals.
Group members then compose dating adverts on behalf of the chosen animals and write them down on an A5 sized paper. They try to show the animals to look attractive. After all the adverts have been written, group members read out the adverts one by one. (It is up to the group whether people read out their own adverts, or randomly they read out adverts written by other people.) After each advert group members can tell, whether the given advert was convincing or not, do they find the given animal to be an attractive dating partner based on the advert.
After the activity, a conversation may start about stereotypes and prejudice. The conversation is facilitated by the group leader:

- In reality, which are the human characteristics, expressions that can make it difficult for you to make friends, or a good relationship with somebody? Which characteristics do you dislike? Which characteristics do you find attractive in others? Are these negative/attractive characteristics typical of you?

- Have you noticed that you tend to turn to certain people negatively/positively? What can cause this positive/negative approach?

Variations:

- When the dating adverts are read out, group members may get a certain number of "dating tokens", coloured paper stripes, heart shaped post it notes, pebbles, etc. (5-6 pieces per person). The animal, with which we would "gladly date"; they should place a token at its dating advert. (Either straight after the advert was read, or after all the adverts have been read.)
- Every group gets a picture, which shows an animal or a plant, and which the group members are not allowed to show each other. After this, the participants write dating adverts for the given animals/plants, or on behalf of the given animal/plant. (For example to recommend a mole to dig a tunnel or bats looking for a voluntary blood donor.)

The other participants have to find out what animals/plants are promoted in the adverts, of what animal/plant is looking for something. (It is advisable to distribute relatively well-known animals/plants to the participants, so that everybody could play the game.

Worth to know: background information about the subject

A) Owl pellet analysis

While walking outside, we may find interesting animal parts, such as bird pellets. These are definitely worth collecting because they contain fascinating "things." The collection is best kept in sealable, individually labelled boxes. It is important to note on the label where and when the pellets were found and how many were preserved. Materials can be analysed as a whole but the pellets must be dissected and examined individually. Each pellet must be sprayed with a disinfectant solution (mainly to bind dust) before dissection. Vertebrate remains (such as upper jaws) and insect body parts (heads, thorax, abdomen, legs, wings, elytra, mouthparts, genitals and other fragments) recovered from the pellet must be stored in separate, individually labelled containers. If a pellet contains unrecognizable materials, these must also be put into and kept in a labelled vial. After dissection, soaking, washing, drying and sorting, the bones of small vertebrate animals can be examined under a stereo microscope.

B) Rehabilitation of protected animals

Experts of Budapest Zoo invest considerable effort into saving individuals of protected species native to Hungary. Over the last five years nearly 8,000 injured animals requiring medical care were treated at our Rescue and Rehabilitation Centre. They included storks pierced by bullets, sparrowhawks with broken wings, weakened kestrels, herons affected by floods and young birds fallen out of the nest. We also get orphaned hedgehogs, bats disturbed in their hibernation, pond turtles hit by vehicles and poisoned birds of prey.

Most of the helpless and/or wounded animals are brought in by well-meaning people who happen to stumble upon them. A smaller percentage is delivered by national park rangers working in the field. Our veterinarians carefully examine every single specimen and decide about medical regimens. Songbirds are transferred to the Bird Rescue Station located in the zoo itself, whereas larger raptors, mammals and reptiles are treated at our Rescue and Rehabilitation Centre on nearby premises.

The fate and death rates of all these animals depend on the severity of their injuries. Healed individuals able to take care of themselves are released at a protected, undisturbed location close to the place where they have originally been found. However, some cannot be set free due to lasting defects that strongly limit the chances of their survival in the wild and must remain in custody for the rest of their lives.

More about the topic:

http://www.zoobudapest.com/segits-segitunk/vadallatmentes/mi-tortenik-a-mentett-allatokkal
https://milvus.ro/Hu/tag/kopetelemzes/

10. module: The closing activity of the week

The purpose and the duration of the module	• reflection on the individual learning/development process • giving feedback to each other Duration: 3-4 hours
Detailed schedule of the activity	15 minutes Methodological questions-answers 5 minutes energising game 20 minutes filling in questionnaires 50 minutes Small group discussion of individual objectives set up earlier 15 minutes break and group photo 5 minutes energising game 70 minutes writing personal feedback, for everybody 30 minutes giving out "Certificates", penguin hug, taking a group photo

Detailed description of the activities in the module

1. Writing feedback

Time needed	Group size	Age	Tools
60-90 minutes	can be a whole class	13-29	paper, pen, pad

We sit in a circle (wither on chairs looking towards the centre of the circle or the opposite direction). Everybody writes his/her first name at the top of the paper sheet, then passes it on to his/her neighbour sitting on his/her right.
The task is to write a personal message for everybody, in which we give a feedback to the person, whose sheet we have in our hand.
It can be the following: I am grateful to you because…, During the last few days I have learnt from you …, I respect you because…, or any other type of message that you find important to share with the other person.
When you have finished the message, we fold the paper sheet, to make a kind of fan out of it, so that our neighbour cannot see our writing as it should not influence him/her. Only the person's name should be seen on the paper. Next, we pass the paper sheet on to our right hand neighbour until it gets back to the original person. In case the paper sheet gets full and you cannot write on any of its side, you can start a new sheet with the name at the top of it and put the paper full of messages to the leg of its original owner. We should make sure to wait for everybody to get their paper sheet, and then give opportunity for the group members to read their messages, or if they like to keep them for later times. There is no possibility for making remarks or asking questions then. If somebody would like to, he/she can talk to his mates about the messages during the break.

Variations:
It is possible to stick the paper sheets on the back, where the instruction is that everybody should write a message on their paper sheet. It is a more dynamic activity, and it is possible to read the feedback written by the others, and to complete them with thing that we find important to give as feedback to that person. Its drawback is that it is less predictable how much time it will take, and whether everybody will get a feedback...

2. Giving feedback using a ball of string

Time demand	Group size	Age	Accessories
30 minutes	up to a whole class	13-29	a ball of string

Participants sit down in a circle and give positive feedback to each other by using a ball of string. One of the participants—who voluntarily agrees to start the game—takes the ball of string into his/her hands, grabs the end of the string and throws the ball to another participant (but keeps hold of the string until the end of the game). At the same time says something "nice" (positive feedback) to that particular person, e.g., recalls a pleasant experience made earlier in the training or names a good quality of the recipient. The one receiving the ball grabs another piece of the string and throws the ball to yet another participant while giving positive feedback to him/her, etc. The new addressee must always be someone else from the group. The play continues until all participants are connected by strings and have received a kind personalized message. As instructors we must make sure that all feedback is truly positive.