Interreg Alpine Space YOUrALPS

EUROPEAN UNION

YOUrALPS project

ALPINE TOOLKIT

Educating Youth for the Alps

Alpine school

YOUrALPS project:
ESD (Education for Sustainable Development)
ALPINE TOOLKIT

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Guideline for the "Alpine Toolkit"

The Interreg-project YOUrALPS encourages young people to identify with the Alpine habitat and treat nature responsibly, in the sense of sustainable development. The current collection of educational activities, called "Alpine Toolkit", can be applied both in school and in the non-formal education sector. This toolkit supports the objectives of the project and provides the therefore needed competences, values and expertise. In this way it helps to narrow the gap between knowing and doing.

The "Alpine Toolkit" is divided into the 7 following subject areas:

- climate change
- biodiversity and connectivity
- mobility
- consumption
- tourism
- living in the Alps
- working in the Alps

For each subject area an educational activity is initially summarised on an overview sheet. When implementing the activities, great value should be placed on transmitting the ESD competences. Therefore, a detailed description of expertise and methodological competence, self-competence and social competence follows. Below, the relation to the main aspects of sustainable development are represented. Finally, detailed instructions for the activity with background knowledge and the required copy templates are provided.
The activities can be implemented with participants from the age of eight years or older, but need to be adjusted to the target group at all times. The Toolkit has deliberately been designed as a ring binder, so single descriptions for a tour can be removed, if needed. Besides, we also invite you to place your own experiences or activities in the ring binder.

Those who are interested in an international exchange on Education for Sustainable Development (ESD) in the Alps, can find like-minded people and additional material within the international network "OurAlps" on www.ouralps.org.

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1. Climate Change

1. Climate Change

Target: Understanding the causes and effects of climate change and claiming responsibility

Target group: 8 years or older

Length: 30-40 minutes

Procedure:

The participants will hear the beginning of the story, "The Snow Maiden," and then continue the story and find an individual ending for it within small groups. Afterwards they reflect on their own behaviour in relation to climate change.

Material:

- story of "The Snow Maiden"
- seat pads for outside
- 2 x 30 cards with concepts/terms

ESD-Competences:

- expertise and methodological competence: facts about climate change; narrative of a serialised story in groups
- self-competence: creativity, self-efficacy
- social-competence: ability to cooperate and work well within a team setting

Values:

- responsibility
- fantasy
- empathy
- sufficiency

Important:

- In order to foster creativity, imaginative solutions from the development of stories are particularly desired.
- In a way, every one of us is Snow Maiden! It must become clear that a fantasy character cannot save us, but rather that we all must take action ourselves. We have to become aware of our influences on nature and climate, and we have to take responsibility. During the reflection, concrete, everyday aspects of realistic solutions need to be worked out and discussed.
- The focus of the activity is on joint planning and action, finding compromises and enthusiasm for climate protection.

Detailed Elaboration

ESD - Competences

Expertise and methodical competence:

Today the consequences of climate change in the Alpine region are clearly visible. Regional climate models and results from climate research show that global warming in the Alps is increasing faster than in other regions and the fragile ecosystem is changing.[1] In the last 120 years, the temperature in the Alps has increased by around 2 to even 3 degrees, depending on the region. Thus the rate of temperature change in the Alps has increased twice as fast as in other regions.[2] The participants experience facts about climate change in the Alps, for example the melting of glaciers, the loss of permafrost soil, strong precipitation, soil erosion (mountain and slope instability). The participants create solutions for how to deal with climate change within their small groups. They learn the methods of the collective story development.

Self-competence:

Creativity will be encouraged by making up an end to the story. Participants discover they have the ability to develop a story, and realise that their ideas can influence personal, as well as social and political solutions concerning climate change.

Social-competence:

Through the storytelling in small groups, participants learn to cooperate and listen to one another. The participants get to know one another better and mutually help each other when one person needs an idea for the continuation of the story. Also, they experience that solutions can be found through teamwork: both in developing the story, as well as in the following discussion on how we deal with climate change in everyday life.

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[1] https://www.alpenverein.de/natur/klimaschutz/klima-klimawandel-alpen-klimaschutz_aid_10273.html
[2] https://www.cipra.org/de/cipra/international/projekte/abegeschlossen/cc-alps/ueber-ccalps/klimawandel-alpen

Aspects of Sustainable Development

Ecological:

The ecological dimensions of climate change in the Alpine region will be addressed within "Snow Maiden" and subsequently discussed.

Economical:

Climate change, as discussed in "Snow Maiden", means poverty for some persons and (temporary) affluence for others. The participants discuss the economic consequences that climate change brings with it.

Social justice:

The figures in "Snow Maiden" represent the emerging economic inequality and the challenge for social justice in the village.

Instruction

Activity: "Developing a story"

The event can take place either indoors or outdoors. The participants sit in a circle. The leader reads the intro of the story "Snow Maiden" by Theodor Fontane aloud. In the story, the consequences of climate change are portrayed via a fictional village community in the Alps. Afterwards, the participants divide into small groups of max. eight people. Now, one participant after the other continues to tell the story and in the group they find an individual ending. Attention has to be paid on age, group composition and the interest level of the group (see different variations explained further on). Each small group gets 30 cards with terms that will help to develop the story.

Variation 1:

For groups that struggle with the narration: The cards will be revealed and layed out in the middle of the small group. The participants can then sort the cards in chronological order, in the way they want to tell the story.

Variation 2:

The cards will be dealt face down and distributed. The participants can decide for themselves which card they want to play first. Cards can also be exchanged.

Variation 3:

The leader sorts the cards beforehand into the following categories: "Path to the top", "Meet Snow Maiden", "Path to the bottom", and "End". A suggestion for a possible arrangement can be found on the template with the colourful background (red="path to the top", blue="meet Snow Maiden", green="path to the bottom", yellow="end").

Variation 4:

For very creative groups: The story can be told freely, without narrative cards.

After finishing their story in the small groups, the participants meet again and present their story to the whole group.

Reflection 1:

Questions to reflect the participants' competences:

- What was easy and what was difficult when you were constructing the story?
- How did the group organise the storytelling process?
- Did they have a moderator?

Reflexion 2:

Depending on the size of the group the following questions can be discussed in the small groups again or in the plenum. In case they have not already been mentioned in the groups, the leader gives background information about the impacts of climate change on the Alps. Key-words: Displacement of habitats, melting of glaciers, soil erosion, impacts on nature and humans, tourism.

- How realistic is it to expect solutions for the causes and consequences of climate change from Snow Maiden?
- What are realistic solutions for the village people? Adapting to climate change on the one hand and emitting less greenhouse gases on the other hand.
- What are my/our possibilities for climate-friendliness in everyday-life?
- How can we prepare for upcoming changes and opportunities?
- What are the competences we need for that?

Debriefing:

In the closing round, each of the participants may say a sentence that reflects which topic of climate change has become important to them, and where they see a relation in their everyday lives. What do I want to change in my everyday life? Where am I already on a good, climate-friendly path?

The Snow Maiden

(Based on the story "The Regentrude" by Theodor Storm, 1863)

Never before was there such a warm winter, as there was this year in the small mountain village. Indeed, the last few winters had also been warmer than what the elders in the village were used to, yet this time, the meadows were green in January. The sleds and skis of the children stood unused in front of the houses, as if someone had forgotten to place them back in the attic after the winter season. You might even guess it was almost April.

It was a rainy Saturday morning. Actually the rain should have been snow. The village streets were empty. No one wanted to trudge through the soaked, muddy ground. The sky was grey and dreary. Only the fat Machine-Max stood in the driveway of his brand-new factory, gleefully watching a truck that had just left the factory premises. The driver greeted him only briefly with a nod. "Snow cannon" could be read on the tarp covering the van. Ever since the winter had gotten increasingly warmer, Machine-Max specialized in the production of snow cannons, and had become the richest man in the region. The village owed him significantly! Of this he was convinced. Higher up in the mountains he took care of the snow-white slopes, so that the tourists could ski. Of course only the rich! The children from the village couldn't afford that. Everything had its price. A new ski lift had just been inaugurated last week. In order to make room for this, a piece of the forest needed to be cleared. Nevertheless, it was a good business deal! And selling the wood brought him more money as well. Machine-Max was pleased, and he already began to calculate how much he would profit next winter, should it continue to get warmer.

"The others don't have as much money as I," he mumbled, rubbed his hands together and gleefully looked over at the neighbouring houses. "There is no proper

winter anymore. Aside from when I make it myself!"

At that same moment, a 50-year-old woman trod towards him. She looked pale and ailing. Her hair and clothes were wet from the rain. "Hello, neighbour," she said. "Such dreary weather. Even high in the mountains there's no snow."

"Haha," he laughed. "Of course there's snow, Mrs. Stine." And he pointed with his finger towards the summit.

"I mean, real snow," she retorted.

"What is real snow? It has to be white, and the skiers have to properly glide over it!"

"Yes, it's all just a joke to you. Don't you see what damage you bring about with your snow cannons and new ski slopes? Just last week a landslide spilled over onto the streets. It's causing avalanches. It will only end badly."

"Never mind your accusations. I bring money to the region. Don't forget that."

"To the region? Perhaps you mean to your bank account. But what should become of us when everything is gone?" Mrs. Stine sighed. "Nature should be sleeping under a thick, cold snow-blanket this winter so that it can gain strength. Just take a look at the hedges. The first buds are already appearing."

"What do I care about the hedges?"

"In autumn, would you like to taste my rosehip marmalade, or not? And you've never rejected my medicinal herbs when you have back pains. Just last winter I had to journey higher into the mountains to find the plants I need. There are less and less of them."

"Oh stop it, neighbour," however just the thought of her rosehip marmalade caused him to salivate for a moment.

"It is unusual to be stormy," continued the woman, undeterred. "The weather

seems to be completely falling apart. And the river that flows through our beautiful village appears abnormally full with water."

Machine-Max laughed. "What more do you want to make me responsible for? Perhaps I am the God of winter?" He then added with a smirk: "I think you've got me confused with the Snow Maiden, old woman, if you still remember that old children's story."

Mrs. Stine turned away. The man's thunderous laugh travelled like an echo between the walls of the houses. She had not thought of the story of the Snow Maiden for quite a long time. Her grandmother had told her this story when she herself was a child. How did the story go again? The Snow Maiden lived high up in the mountains in her ice cave, from where she was able to keep watch over the winter. She made sure that the winter was cold and dark so that nature could sleep and gather strength for spring. "Snow Maiden must have fallen asleep", thought Mrs. Stine and started to make her way home. "Someone needs to wake her back up. Yet the path to the summit is long and difficult. I can't do that alone."

Template:
30 cards with terms:

Town meeting	**Companions**
Climbing gear	**Dispute**
Together we are strong	**Avalanche**
Raging mountain stream	**Fallen trees**
Thunderstorm	**Magic spell**
A good fairy	**Entrance to the cave**
Rock	**Snow cannon**

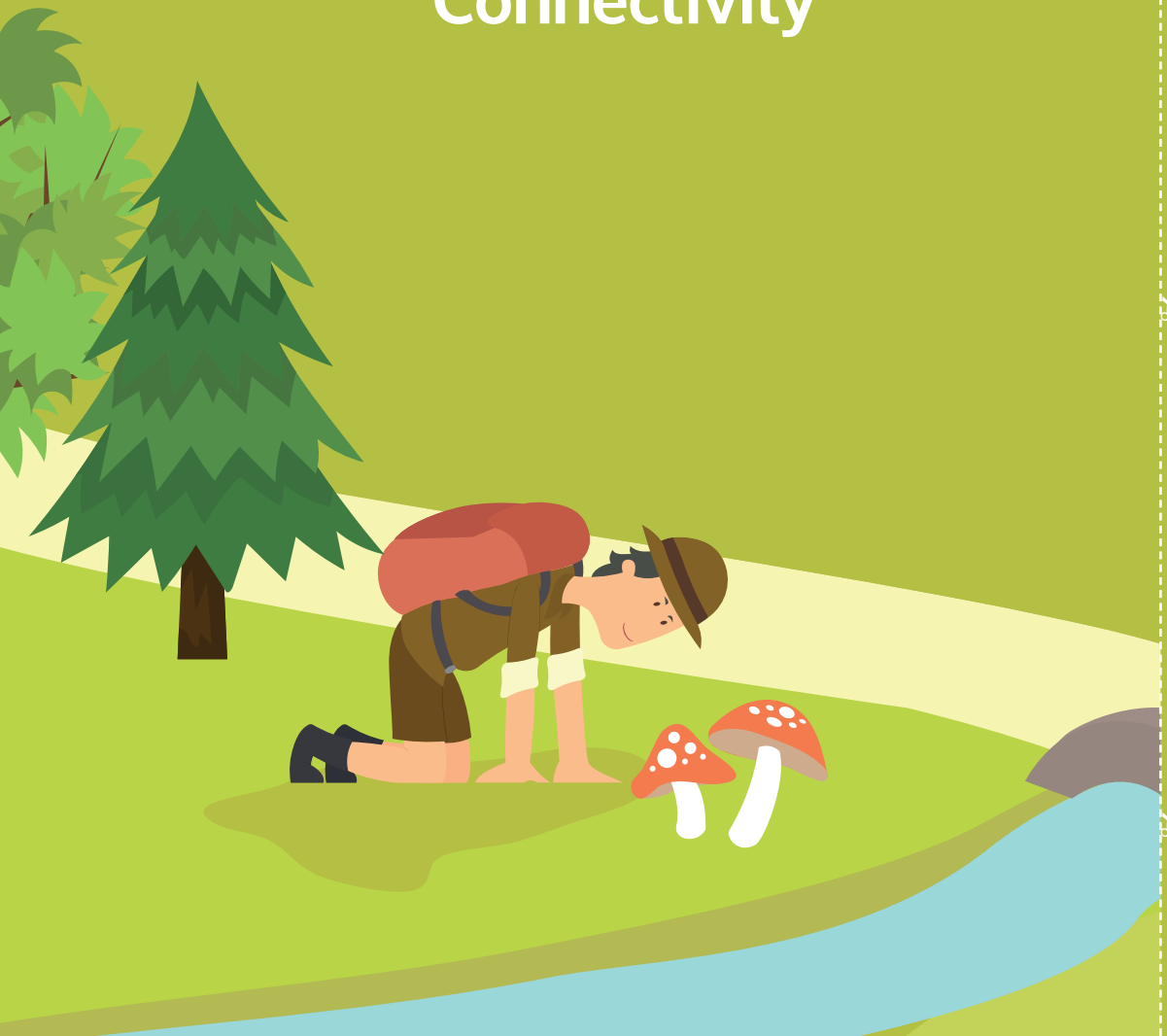
Friendship	Lucky charm
Axe	Climbing rope
Melting glacier	Tunnel
Snow monster	Mountain goat
Lodging	Feast
Snow Maiden	Playing a flute
Sleigh ride	Greed
Brown owl	Treasure with gold coins

30 coloured cards with terms for variation 3:
orange = way up, blue = meeting Snow Maiden,
green = way down, yellow = end

Town meeting	Companions
Dispute	Together we are strong
Raging mountain stream	Fallen trees
Magic spell	A good fairy
Rock	Treasure with gold coins
Snow cannon	Playing a flute
Sleigh ride	Feast

Lodging	Mountain goat
Tunnel	Melting glacier
Axe	Lucky charm
Climbing gear	Entrance to the cave
Avalanche	Brown owl
Thunderstorm	Snow Maiden
Greed	Climbing rope
Snow monster	Friendship

2. Biodiversity and Connectivity



2. Biodiversity and Connectivity

Ziel: Appreciating biodiversity and understanding the necessity of connectivity

Target group: 8 years and older

Duration: 60 minutes

Procedure:

Activity A: "Getting Familiar with Diversity"
Within small groups, mapped-out areas in the surrounding nature will allow the participants to experience the variety of colors, leaf and flower shapes that are found in nature. The participants learn how to determine plant species with all their senses and reflect the topic of biodiversity.

Activity B: "Close enough?"
The participants playfully test how distances between protected areas can be overcome by imitating the movement patterns of animals. They deal with protected areas in the Alps, the importance of their connectedness and reflect on the meaning of borders.

Possible additional activity C: "Detect Changes"
Each group makes small adjustments to their area that must be discovered by the others afterwards. In the reflection, the topic of ecosystem resilience will be reviewed.

Material:

- field guides, according to the number of groups
- writing material
- magnifying glasses and paintbrushes
- 4.5 m red string per study area or measuring tapes
- 4 sticks per group
- map of the Alps with protected areas
- cards: "Types of animal movement patterns"

ESD (Education for Sustainable Development) competences

Expertise and methodological competence:

- learn about biological diversity as a basis for important ecosystem services
- grasp the meaning of connectivity of protected areas
- understand that ecosystems with a greater amount of diversity are more stable and that Alpine ecosystems react particularly sensitive to disturbances

Self-competence:

- determine plants with all senses
- being aware of one's own limits
- feeling one's own connectedness with nature and society
- appreciate diversity

Social-competence:

- team spirit
- ability to cooperate with others
- motivate others to act
- respect the limits of others

Values:

- mindfulness
- responsibility
- sustainability
- diversity
- connectedness

Detailed Elaboration

ESD (Education for Sustainable Development) competences

Expertise and methodological competence:

The participants will learn methods to grasp biodiversity. This includes the perception with all senses. They visualize the various colors and shapes of leaves and flowers, feel the texture and shape of stems and detect the plants by their smell. They independently acquire new knowledge with their senses and learn to work with a field guide. They learn about the importance of protected areas and the necessity to connect them through ecological corridors. They understand biodiversity as a basis for important ecosystem services and know about the need to protect biological diversity.

Self-competence:

The sensual perception of the participants is fostered. Through personal physical experience, the participants feel the migration difficulties for flora and fauna in overcoming large distances between the protected areas. If possible within the group, examples of diversity in their own living environment can be reflected. In addition, the own connectedness with nature as well as borders in nature and society should be considered.

Social competence:

The participants motivate themselves and others to be active. Within the small groups, participation will be encouraged. They will recognize their own limits as well as the limits of others, learn how to uphold and respect them and help each other to possibly even overcome them. The ability to work and cooperate in a team-setting will be fostered through the joint activities in the small groups.

Aspects of sustainable development

Ecology:

The ecological dimensions of biodiversity (diversity of genetics, species and ecosystems) are evident and easy to understand for the participants.

Economy:

From an economical view, the preservation of biodiversity is quite often associated with expenses. However, newer approaches show that the preservation of biodiversity has economic benefits and that a loss of biodiversity is accompanied by economic loss. This can be observed in the range of forestry for example. Monocultures in forests are less resistant to withstand the impacts of climate change and are therefore prone to diseases. Furthermore, diversity of habitats is also an important aspect for tourism and identity.

Society:

In regards to social justice, the question of whether every living being has a right to exist can be debated among the participants. A critical look needs to be taken to determine who has the right to decide which living being will be saved from extinction.

Activity instructions

Activity A: "Getting Familiar with Diversity"

The participants work in small groups. Every group locates a suitable examination field covering approximately one square meter (1m x 1m) and marks the area out with a rope and sticks. The surfaces should vary in their appearance: a meadow with flowers, edge of a forest, rocky segments, etc. Afterwards, the groups will receive the task to look closely at their experimentation field. For the identification of plants, field guides are available. The participants should take a close look and get an idea of the diversity on these areas with its plants – and maybe even discover fauna – using as many of their senses as possible. (The drawing of little pictures often supports a closer observation!)

When the groups have worked out their examination field, they present their observations to the other participants (number of plant species and flower colours, various leaf shapes, other features on the area such as ant trails, unusual rock formations, etc.). The individual groups rotate from area to area. It is important to ensure that enough time has been set for the detailed contemplation of the examination fields. Participants must keep damage of the vegetation to a minimum.

Reflection:

- The participants will be encouraged to describe how they have experienced biodiversity in their examination fields.
- Could the individual participants work with the field guidebooks to determine the plants? What was difficult?
- Which examination field will be able to compensate disturbances best?
- Where can I find diversity in my own surroundings? (Diverse landscapes or heterogeneous social groups)

Activity B: "Close enough"?

Part 1: The participants will be asked to imagine their examination field as a protected area in the Alps. The string defines the borders of the protected area. Then, the participants take one of the cards with a picture of an animal (see template). Imitating the movements of the animals they cover the distance from one examination field to the other. To increase the difficulty obstacles can be built up between the areas or a competition can be carried out.

Reflection:

- The participants physically experience how strenuous it is to overcome the distance between fields and then report about their experiences and feelings.
- Are the experiences gained applicable to nature?
- What happens when the protected land areas lay too far apart from one another, or are divided because of major obstacles (streets, ski slopes, dams)?

Part 2: Afterwards, the groups review an alpine map with the indicated nature reserves. The following questions can be debated:

- Why do we need nature reserves?
- Why do nature reserves need to be connected via passageways?
- What are "natural borders"? (For example, natural borders can be bodies of water, mountain ranges, deserts, wetlands. Humans generate borders such as streets, highways, train tracks, areas of settlement, cities, canals and fences).
- How does nature deal with borders? Option 1: Certain species try to overcome borders, thus they can spread and expand into new habitats. Option 2: Borders cannot be overcome. This can lead to genetic depletion and the risk of extinction is increased. Option 3: If habitats change, some species adapt to the new circumstances and even undergo genetic alterations.
- What is the point of borders in nature reserves/national parks? (They protect from human intervention like road construction, urban sprawl, deforestation. Nature can develop without human influence).
- What are borders for us humans? (geographical borders, state boundaries, language barriers, religious boundaries, personal boundaries, etc).
- How do humans deal with borders? (Crossing borders often leads to conflict. Personal boundaries protect us. We set boundaries, and don't want these boundaries to be crossed).

Additional questions to reflect and enhance self-competence:

- Where is my sanctuary?
- Where are my boundaries?
- How do I protect my boundaries and how do I overcome them?

Additional Activity C: "Detect Changes"

This method shows the participants the meaning of diversity in case of disturbances. Now each group will make a small alteration on their examination field. The groups rotate again from area to area, and try to discover the "interventions" that were made in the other fields.

Reflection:

- On which examined land area were the changes easy or difficult to discover?
- Which examined land area will most effectively be able to recover from the interferences?

Background of Biodiversity and ecological connectivity

Biodiversity is the reason for an innumerable amount of achievements in nature. Various species could better utilize available resources in their respective locations, and therefore, enhance bioproductivity. Ecosystems with higher species density are more stable because they are less susceptible to disturbances. This is due to the fact that more alternative methods are at disposal for energy flow and nutrient circulation. Alpine ecosystems react particularly sensitive to increasing temperatures with the consequence of changes in the plant communities. As growing conditions worsen for the plants, many species will become at risk for extinction in their own ancestral lands, and will thus be restricted to higher altitudes. New emerging species increase the pressure on the plant community. The forest line is pushed higher and displaces growth-restricted alpine plants. Ski-regions intensify the situation, as they divide and destroy the alpine plant community.
The established nature reserves in the Alps cover approximately 20% of the whole alpine region, whereas the various national and international protection categories can vary quite a bit.[3]

[3] https://www.bundesforste.at/fileadmin/publikationen/studien/Klimastudie_WWF.pdf

Template:

Pictures of animals for Activity B

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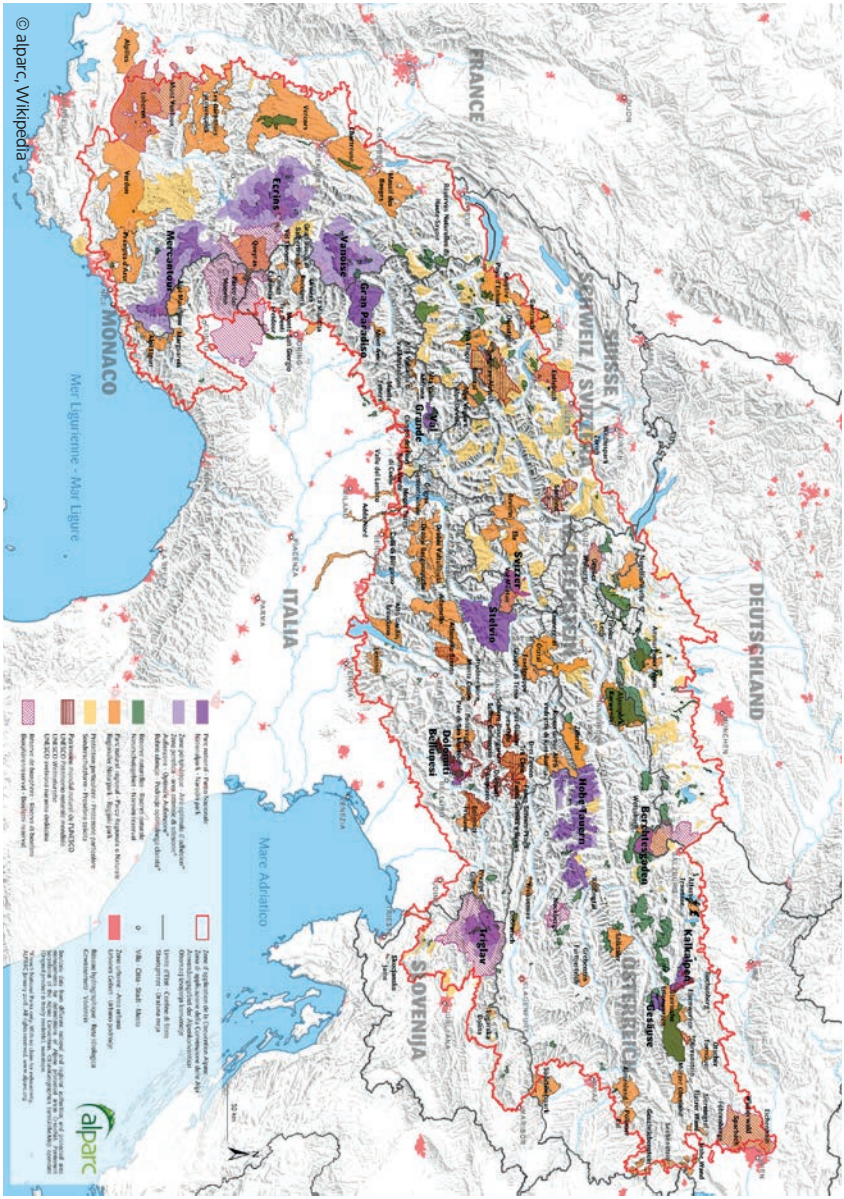
Template:

Map of protected areas in the Alps



3. Mobility

3. Mobility

3. Mobility

Target: Consideration regarding mobility of humans and animals in the Alpine region

Target group: 8 years and older

Dauer: 90 minutes

Procedure:

Activity A: "The soul goes on foot"
Along a marked path the participants move forward in different kinds of ways (hopping, in pairs, etc.). Do they discover the marbles the group leaders have hidden by the path? Then the group discusses what profound human mobility is and how hurrying influences the way we see our surroundings.

Activity B: "Meditation"
During meditation the participants listen to the noises in their ambient, especially to those caused by movement.

Activity C: "Why do humans travel"
In a matching game different ways of human mobility will be linked to existing needs.

Activity D: "Animal adaptation strategies"
With the help of illustrations the mobility of animals in the Alps and their adaptive strategies will be visualised and discussed.

Material:

- 20 marbles or 20 chestnuts for the advanced
- cushions / mats or anything to sit on
- laminated pictures on the topic of human mobility
- pictures of human requirements
- picturecards: adaptive strategies of animals

ESD-competences

Expertise and methodological competence:

- getting to know meditation as a method
- realising, that different kinds of mobility can either help us to or deter us from being attentive to nature
- being able to establish connections between our own mobility behaviour and its consequences for nature
- learning about adaptive strategies of animals in the Alpine area

Self-competence:

- reflecting one's own mobility behaviour
- allowing determination to implement alternative action
- self-efficacy
- empathy
- attentive behaviour
- perceiving the beauty of nature

Social competence:

- teamwork
- ability to cooperate

Values:

- sense of responsibility
- mindfulness
- consideration
- sufficiency
- discover slowness as a source of strength

Important:

- allowing sufficient time for meditation
- establishing connections to daily life and reflecting on one's own mobility behaviour

Detailed Elaboration

ESD-competences

Expertise and methodological competence:

The previous meditation uses a technique that primarily mobilises the groups' feelings and empathic abilities. In the discussion that follows the participants will receive information on mobility in relation to climate change. They will gain interdisciplinary insights and establish connections to their own lifestyle and leisure behaviour and its effect on nature. The participants reflect on their own perceptive faculty.

Self-competence:

Participants reflect on their own mobility behaviour and learn, that they can make more calculated decisions. Through mindful behaviour every one of us will be able to perceive the beauty of nature more consciously. Due to group interaction participants will develop insight into the motivation of others (empathy).

Social competence:

When moving in groups, teamwork is necessary. Participants motivate one another to analyse their mobility behaviour. The participants' communication skills will be trained by learning to work in a team, to discuss constructively, to take on and utter criticism adequately.

Aspects of sustainable development

Ecology:

In the Alps many animals and plants are influenced by our mobility behaviour, e. g. when habitats become divided by roads or traffic noise disturbs animals. The landscape in the mountains is also shaped by our mobility behaviour (forest roads, hiking trails, etc.). Furthermore, our mobility behaviour has enormous effects on the climate.

Economy:

Time is money – this phrase applies to many people even in terms of mobility. Getting from one place to another as fast as possible saves time and is considered efficient and the focus on nature often gets lost. In this context it is the task of the ESD to draw attention to concepts of sufficiency and to reflect one's own consumption behaviour. What do I need? What is really important in life?

Society:

The beauty of nature has to be preserved for future generations. New Mobility concepts, such as car or bicycle sharing in cities and the further development of local traffic are needed. In conversations the group develops individual ideas and maybe even possible solutions.

Anleitung

Activity A: "The Soul goes on foot"

A pathway of approx. 20-30 metres is marked out. The group leaders hide chestnuts or marbles along the route. The group is asked to walk along the path several times, every time moving in different ways.

1. As ICE-high speed train: One of the participants is the locomotive, the others are trailers.
2. Everyone is hopping like a frog.
3. Participants walk in pairs arm in arm and talk about means of transport.
4. Everyone walks on their own in silence.
5. Participants may also suggest different ways of moving forward.

After the first round the group leaders ask the participants, if they have discovered anything special along the route. If so, they should whisper their suggestions in the group leader's ears. The game lasts as long as the participants need to find the 20 chestnuts or marbles. To keep it interesting, participants may not exchange information during this activity.
Finally, all the chestnuts or marbles will be gathered up again.

Reflection:

Group exchange in a circle:

- What is profound human mobility?
- If we are hurrying the way we do – are we still really aware of our surroundings?

Connections to everyday life and one's own mobility behaviour should be made.

Activity B: "Meditation"

Participants look for a dry place to lay down in the grass and look for condensation trails in the sky. Then they listen to noises caused by airplanes, trains, cars, ... This activity can be carried out in the beginning in populated areas and, for comparison, can be repeated in remote terrain. The group discusses the various noises caused by mobility.

Reflection:

- Which persons are travelling by plane, on the road, by train? (For example national and international tourists, people from the city, doing sports in their leisure time, commuters from the Alpine region to bigger cities, regional people on errand trips)
- Why do people move from one place to another? (Commuters to work, regional and global work places, seeking recreation, leisure time activities, sports, adventurous spirit, desire to make new discoveries, meeting friends/ family)
- How does our mobility behaviour influence other people and countries? (See noise and traffic exhaust in Tyrol for example)
- What consequences does mobility have for the environment? (Increasing greenhouse gases, intensifying climate change, precious nature reserves being lost to urban sprawl and expansion of transfer networks)

Activity C: "Why do humans travel?"

The participants sit in a circle and match the depictions showing forms of mobility to the cards that show human needs and desires. In group conversation they will learn about motivations of travelling and discuss alternatives. Finally, the groups compare their results.

Reflection:

- Why do we have such an enormous need for being mobile? In which way are we influenced by commercials?
- Which tendency can be observed in peoples' mobility behaviour?
- How much mobility is there in our own leisure, sports and holiday activities?
- Is it possible, that we cover needs in other fields of life through mobility?

Activity D: "Adaptive strategies of animals"

Participants divide into small groups and sit in a circle. In front of them there are pictures of chamois, alpine swift and caddisfly/larvae. In their small group they discuss the special needs and adaption strategies of animals in the Alps. Doing this they will get to know certain animal species.

Reflection:

- What kind of special skills have animals in the Alps developed in order to meet their needs despite the extreme environmental conditions? (change of location, hibernation, lower metabolism, change of diet, ...)
- How have human beings adapted to these conditions in the past and today?
- Which are the common needs of humans and animals?

Examples for food supply: Alpine swifts take on the risky journey to the south to avoid lack of food in winter. In wintertime chamois migrate to the valleys where there is less snow. They lower their metabolism to save a lot of energy. In the early days Alpine herds- and dairymen used to be self-sufficient and only able to host single overnight guests. Today landlords on alpine huts have supplies for their guests flown in with a high level of energy consumption.

Possible topics for the final reflection:

It is important to pick up the participants' ideas and develop new solutions together.

- Knowing my needs: Is it necessary to satisfy them at any time and any place?
- How can I shape my life in a way that my sphere of activity (mileage) decreases, while quality of life does not change or respectively increases at the same time?
- Which alternative means of transport can I explore? Question leisure-time activities / sports / vacation. Looking for alternative supply possibilities: regional and seasonal shopping, buying vegetable boxes, building one's own stockpile, e.g. preserving sauerkraut and fruits.
- What personal goals would I like to set in order to improve my carbon footprint?

Background knowledge mobility

Transport Sector:

Emissions from transportation – unlike the other sectors – do not decrease but have continuously increased over the years. The effect of more ecological motors has been overcompensated by bigger and heavier vehicles, and especially by more kilometres driven. Germans are travelling around 1.2 billion passenger kilometres by car, bus, train, airplane or ships year after year. In 2015, with 160 million tons of CO_2-equivalents, transport is the third largest source of emissions in Germany, which corresponds to 18% of the greenhouse gasses caused in Germany.[4] For their mobility private households in the EU invest more than one billion Euros annually. In Germany the amount per person sums up to around 2,600 Euros per year.[5]

[4] https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Klimaschutz/klimaschutz_zahlen_2019_fs_verkehr_de_bf.pdf
[5] https://www.eea.europa.eu/de/themes/transport/intro

Data on mobility regarding workplace travel, recreational and vacation travels:
Mobility on land: Every German travels an average of 11,762 km per year. These are approx. 39 km per day. From these, around 17 km are spent on trips to work, around 11 km on recreational trips and around 11 km on errand trips.[6]
Mobility on water: Travelling on cruise ships is damaging to the climate since their motors are driven by heavy fuel oil and next to the greenhouse gas CO_2 they emit a lot of nitrogen oxides and particulate matter.
Mobility in the air: Flying is the most climate-damaging way to travel. A flight from Germany to the Maldives and back (distance: 2x 8,000 km) causes a per capita climate impact of more than five tons of CO_2. For the same emission rate a mid-range car goes more than 25,000 km (by a consumption of 7 l/100 km).[7]

Animals and Mobility:

Mobility as an adaptive strategy of animals to the conditions in the Alpine Region:

Searching for food in winter, **chamois** migrate to the valleys. In order to save energy, they reduce their metabolism, slow down their heartbeat and lower temperature in the extremities.[8]

Alpine swifts used to be cliff breeders. As synanthrope species they followed humans to their settlements. Early May they move into their quarters to raise their chicks. As early as beginning of August they start their journey back to Africa, where they spend the winter in good food supply.[9]

Larvae of stoneflies and mayflies & Co spend months or even years in streams. Here, as predatory species, they find a richly laid table. After the last moult, the adult animals leave their habitat water to mate. Often they live only for a couple of days. In order to prevent a shifting of the habitat, female insects, especially female mayflies and stoneflies, fly upstream before depositing their eggs.[10]

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[6] http://www.mobilitaet-in-deutschland.de/pdf/MiD2017_Ergebnisbericht.pdf S. 3
[7] https://www.umweltbundesamt.de/umwelttipps-fuer-den-alltag/mobilitaet/flugreisen#textpart-2
[8] Arnold, W. (2015) Überleben im Hochgebirge - Winteranpassungen des Gamswildes. Die Zukunft des Gamswildes in den Alpen. Schriftenreihe des Landesjagdverbandes Bayern e.V., S. 13 - 16
[9] https://de.wikipedia.org/wiki/Mauersegler
[10] https://de.wikipedia.org/wiki/Steinfliegen & https://de.wikipedia.org/wiki/Eintagsfliegen

For reproduction **lake trouts** wander upstream to their spawning waters. When they arrive to the upper reaches, females release their eggs into gravel shallows with rich water flowing through them. Young trouts stay in these waters for one to two years, before they move downstream. Due to good habitat conditions and food supply they grow very fast.[11]

[11] https://www.alpenflusslandschaften.de/de/seeforelle.html

Template

matching game – motivation picturecards

work / building site

shopping / supply trips

leisure time / motorsports

leisure time / kayaking

leisure time / surfing

holidays / on the beach

meeting family / friends

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Template

matching game – means of transport picturecards

car

train

ship

bicycle

airplane

© Pixabay

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© Pixabay


© Pixabay

Template

adaption to the Alpine habitat through mobility - picturecards

trout

chamois

caddys fly

larvae caddys fly

alpine swift


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4. Consumption

4. Consumption

4. Consumption

Target: Reflecting one's own consumer behaviour on the example of nourishment in the Alps

Target group: 8 years and older

Duration: 45 minutes

Procedure:

Activity A: "The Alpine lunchbox, today and in the past"
Participants examine the origins of products belonging to a hiker's lunchbox. With the help of product images, they measure transport kilometres on a world map and determine the respective CO_2-emission caused by the transport.

Activity B: "Adaptive strategies – nourishment"
After playing animal pantomime, various adaptive strategies of animals will be discussed.

Material:

- packed lunchbox by group leaders
- mobile phone
- writing utensils
- world map
- pictures of animals
- pictures of widely travelled food
- CO_2-emission chart for 1 kg of food per 1,000 km

ESD-competencies

Expertise and methodological competence:

- recognizing connections between nutrition and climate change

Self-competence:

- recognizing the effect of one's own actions on others
- reflecting one's own needs

Social competence:

- developing and reflecting courses of action together

Values:

- justice
- open-mindedness
- sufficiency
- regionality
- sustainability
- sense of responsibility

Important:

- Make connections to everyday life: How do my nutritional habits affect climate, biodiversity and other people's lives?
- Take care that none of the participants is being criticised on their eating habits (snacks they have brought along). This is not about dividing food into good or bad, but sharpening awareness on how eating habits affect climate, biodiversity and other peoples' lives (including not only conditions of production, but also exposure to noise and particulate matter along transport routes).

Detailed Elaboration

ESD- competencies

Expertise and methodological competence:

Whereas only 100 years ago people had only regional food to eat, today the major part of the food has travelled halfway around the world before being consumed. The demand for globally produced food is a major contribution to carbon dioxide emissions and thus to climate change. By "analysing" the food brought in by the group leaders, participants will be able to make connections between different types of nutrition practices, climate change and the loss of biodiversity. They will be inspired to ponder on the problems surrounding global food supply. The Alpine habitat poses a big challenge for animals. Over a long period of time various species have developed adaptive strategies that enable them to survive food shortage, extreme cold and snow conditions.

Self-competencies:

Dealing with origin and production conditions of the food brought in by the group leaders requires great willingness to self-critical thinking. It supports the ability to recognise the effects on other peoples' lives caused by one's own actions. Depending on the products' country of origin, social injustices are often involved. The topic promotes and increases the awareness of global justice.

Social competence:

Participants will be enabled by the module to plan, reflect and implement courses of action together with others.

Aspects of sustainable development

Ecology:

Our modern diet supports intense production and international transportation of food, leading to major climate pollution. This has a major impact on Alpine areas, which react especially sensitive to disturbances.

Economy:

The food sector is one of the biggest industry branches worldwide. International trade networks and interconnections to developing countries are of major significance. Looking at the global economic situation, a strong north-south divide can be observed in terms of world income. Promoting fair economic trade relations is one of the ESD's goals.

Society:

We are living at the expense of others. Our eating habits lead to great injustice worldwide. In the "global South", smallholders are often threatened, driven out of their farms and in this way deprived of their livelihood. Their land is taken over by global corporations for an industrial production of agricultural products. The consequences are rural depopulation and urbanisation. With a sustainable nutritional style we can render the world more socially just.

Instructions

Activity A: "Alpine snacks, today and in the past"

Using the example of the packed lunchbox, brought by the group leaders, the extent of worldwide food transport can be very well presented. Together, the participants try to determine the origins of every single product. In addition, the available picture cards and distance specifications will be laid out on the world map.
The determined distances will be laid out with sticks or strings. Alternatively, using their mobile phones, participants could calculate the transport distance travelled by food, with the help of rangefinders on the internet. On the basis of the determined kilometres, teenagers and young adults can calculate the CO_2-emissions of food transport per kilogram, assuming a certain transport medium.

Reflection:

- What are the contents of a typical modern lunchbox?
  Looking at the great variety of food brought in by the group leaders: cereal bars, apple from New Zealand, dried apricots from Italy, salami-bread from Italy, baked goods from China, power drinks and much more.
- What did a typical Alpine snack consist of in the past?
  Smoked meat, mountain cheese, spring water, homemade bread (self-sufficient).
- How does the climatic footprint of Alpine snacks today and in the past compare?
- What impact do our eating habits have on lives of others?

Part B: "Adaptive strategies of animals to winter in the Alps regarding food"

Introduction: Animal pantomime
Participants divide into small groups. Each group draws an animal card. Together, the group mimics the depicted animal by pantomime. The other participants have to guess what animal it is.
The depicted animals are: marmot, ibex, rock ptarmigan, fire salamander, spotted nutcracker.
Afterwards the participants will get to know the adaption strategies of these animals

Reflection:

- What is the difference between humans and animals?
- What do humans and animals have in common? (e.g. building up stocks)
- How have humans adapted to winter in the Alps?

Examples:

- In early summer Alpine farmers and their animals follow vegetation. First, they move to the low mountain pastures, then, in midsummer, up to the ones located in higher altitudes, whereas they spend wintertime on their farms in the valley.

- Alpine farmers used to live from their own supplies. They used drying, salting, pickling, smoking and other conservation methods for their food. Today food is mostly bought.
- Many tourists visit the Alpine region during hiking- and skiing- season. Supplying visitors as well as running Alpine mountain huts and ski resorts implies a high expenditure of energy.

Background knowledge consumption

CO_2-emissions from food transport worldwide:[12]

Shipping industry

Worldwide annual carbon emissions of the shipping industry amount to 1.12 billion tons. That is 28% of the greenhouse gases caused by the whole of food transport. The biggest container ship produces 300,000 tons of CO_2 every year, which is the equivalent of a middle-sized coal-fired power station emitting CO_2.

Airplanes

Every day 140 tons of food is flown into Germany. For the most part these are only perishable products. Thus only 0.01 % of bananas are flown in, whereas 90 % of all Papaya import is done by plane. All in all this is less than 1 % of all food brought into Germany. But, these cause up to 16 % of all greenhouse gases caused by the food transportation industry.[13]

Railway & truck

The remaining 56 % of greenhouse gases caused by means of food transport are shared by railway and trucks. This means a worldwide emission of 2.3 billion tons of CO_2-emission every year.

[12] https://www.hs-aalen.de/uploads/mediapool/media/file/5772/Doku_Food_Miles.pdf
[13] https://www.greenside-story.de/lebensmittel-per-luftfracht-eine-vermeidbare-umweltsuende/997

Chart on CO_2-emissions per means of transport, per kg of transported food per 1,000 km transport route:[14]

	Flugzeug	LKW	Bahn	Schiff
g CO_2/1000 km Nahrungsmittel	1000 g CO_2	200 g CO_2	80 g CO_2	35 g CO_2

The following figures make clear that the Alpine region is suffering from the traffic load: In 2018 2.42 million semi-trailer trucks and truck-trailers crossed the Brenner Pass.

Adaptive strategies in nature regarding food[15]

Marmots are perfectly adapted to their habitat. In the course of summer, they eat a lot to put on fat reserves of up to 1.5 kg, which ensure their survival during winter. They hibernate from October to March, only interrupting their sleep to pass urine and faeces. In order to save energy, they reduce body functions to a minimum. To give each other warmth, up to ten animals snuggle up and spend the winter in their burrows together.[16]

Ibexes have adapted very well to the rock region and even spend wintertime above the forest line. How is that possible? Their hooves have horny rims that guarantee good grip, whereas the inner bales prevent them from slipping. Their extreme climbing capacity is also favoured by two independently movable hoof toes. This way, in winter, they can feed on the nutritious plants of the rocky region.[17]

Fire salamanders give birth to their larvae in fresh, oxygen-rich mountain streams. The water-living larvae mainly feed on insect larvae and tadpoles, which exist here in abundance. As adults, these animals live in moist deciduous and mixed forests, next to water, where they can find sufficient shelter and plenty of food. Their diet

[14] https://www.hs-aalen.de/uploads/mediapool/media/file/5772/Doku_Food_Miles.pdf
[15] https://www.zobodat.at/pdf/Jb-Verein-Schutz-Alpenpfl-Tiere_8_1936_0062-0078.pdf, S. 62-78
[16] https://naturzyt.ch/natur-erfahren/wildtiere/225-murmeltiere-%C3%BCberleben-im-untergrund.html
[17] http://www.wildtierportal.bayern.de/wildtiere_bayern/215953/index.php

includes: slugs, centipedes, woodlice, spiders and insects. From November until around March, fire salamanders stay in burrows where they fall in a state of torpor. During this time they don't eat.[18]

In winter, **rock ptarmigans** have powerful, almost paddle-shaped claws that facilitate digging and scratching for food.[19] In summer these long claws are exchanged for shorter ones. Their plumage goes down to the toes and becomes especially long and stiff during winter. In this way it increases the supported area of the foot and makes it easier for the bird to walk in loose snow.[20]

In summer **spotted nutcrackers** mainly eat insects, but also lizards, frogs, birds' eggs and nestlings. In autumn it feeds on berries, whereas in winter it is attracted to the seeds of certain plant species (conifers, in particular stone pine, pine nut and hazelnut). For this purpose, the spotted nutcracker builds up large stores of several thousands of seeds in the forest ground, from which it feeds during the winter.[21]

All animals described above mustn't be disturbed in Winter, as any unnecessary disturbance depletes energy reserves.

[18] http://www.amphibienschutz.de/amphib/feuersal.htm
[19] https://www.oberstdorf.de/alpininfo/allgaeuer-alpen/tiere-pflanzen/voegel/schneehuhnl
[20] https://www.greenside-story.de/lebensmittel-per-luftfracht-eine-vermeidbare-umweltsuende/997
[21] https://de.wikipedia.org/wiki/Tannenh%C3%A4her

Template:
Pictures "Widely travelled food"

French cheese	**Butter from Ireland**
Paprika from Spain	**Italian salami**
Banana from Central America	**Cocoa bean from western Africa**
Apple from New Zealand	**Walnuts from California**
Bread from regional bakery	

Kilometres travelled

1 400 km	**1 700 km**
30 km	**9 700 km**
700 km	**9 600 km**
10 000 km	**18 200 km**
500 km	

Template:


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Template:

Pictures "Adaptive strategies of animals in the Alps regarding food"


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© Nationalpark Berchtesgaden


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5. Tourism

5. Tourism

5. Tourism

Target: Reflection of one's own travel and leisure time behaviour

Target group: 8 years and older

Duration: 30-40 minutes

Procedure:

Activity A: "Nature as a sportsground"
On natural ground, participants are having a sports competition and create traces by doing so. These will be examined and discussed afterwards.

Activity B: "Land Art"
Small groups create miniature sports arenas with miniature figures. One's own travel and leisure time behaviour in nature will be reflected.

Activity C: "Tree-meditation"

Material:

- scarves or jackets to demarcate a playing field
- miniature figures
- plasticine
- camera
- instruction for tree-meditation

BNE-Competencies

Expertise and methodological competence:

- learning about Land Art and meditation as methods
- effects caused by mass tourism

Self-competence:

- creativity
- self-efficacy
- expressing emotions
- mindful behaviour
- discovering nature as a source of strength
- recognising one's own needs regarding nature
- seeing one's own traces

Social competence:

- ability to cooperate Teamwork
- perceiving the needs of others and integrating them into a common "picture"

Values:

- responsibility
- mindfulness
- team spirit
- consideration
- natural landscape
- wilderness

Important:

- Making connections to everyday life: Where do I leave traces in nature?
- Reference to ecological footprint for traces that cannot be seen directly.

Detailed Elaboration

BNE- Competencies

Expertise and methodological competence:

Participants get to know the method of Land Art with miniature figures and tree meditation. They will learn about the consequences of mass tourism on nature and the advantages of sustainable tourism for the region. Tourism has led to extensive structural and natural changes in the Alps.[22] More than 50 % of the traffic in the Alps belongs to leisure and tourism traffic.[23] Overnight stays are getting shorter and shorter, whereas in some regions the number of tourists is continuously rising. Ski tourism presents further problems for the regions due to climatic changes (less snowfall), as well as interventions in nature through the development of new ski-resorts and ski lifts. Many Alpine regions are economically dependent on tourism.

Self-competence:

By being creative with natural materials and miniature figures, participants can express themselves in an emotional way. They learn to voice their thoughts about their own needs and interests and those of others, concerning their ecological footprint. Through tree-meditation the participants will have the opportunity to feel their own body and experience nature as a source of strength.

Social competence:

The Land Art-activity promotes interactive decision-making and working within small groups.

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[22] For details to historical development and the special challanges of tourism in the Alps, see: https://www.klett.de/alias/1015012

[23] https://www.bund-naturschutz.de/alpen/tourismus.html

Aspects of sustainable development:

Ecology:

Tourism influences the habitats of numerous animals and plants in the Alps. Mass tourism has a major impact on nature (e.g. winter sports, mountain biking off the beaten tracks, etc.)

Economy:

For many people living in the Alps tourism is an important source of income. Tourism has to be shaped in a sustainable way and in harmony with natural conditions. Only in this way future generations can continue to profit from this source.

Society:

Experiencing nature should be independent from financial means. Especially locals in tourist strongholds should be able to afford outings, regardless the season.

Instructions

Activity A: "Nature as a sportsground"

Participants will be invited to take part in a sports competition on natural grounds. This is to show and make the participants experience the contrast of nature as a stage setting and resource versus a sustainable treatment of nature. The group leaders demarcate a playing field of approx. 10 m in length with scarves or jackets. Three to four teams compete with each other in egg-and-spoon-races (balancing a stone between two twigs), piggyback races, Aikido-races (In pairs, team members clamp 10 cm long twigs between their four index fingers. Doing this they have to race along a certain distance, in competition with the other teams. The twigs shouldn´t fall).

Reflection:

In a subsequent reflection, participants look at the traces they have left behind on the ground:

- Which kind of traces do other sports activities leave behind?
- What did every individual perceive of nature? What was the focus on?
- Where do I leave direct and indirect traces in nature?

Depending on the age group, a link to the ecological footprint can be made.

The group leaders provide the participants with background information and data on the field of tourism.

- How has tourism changed during the past decades?
- Which consequences can be seen?

Activity B: "Land Art"

After that, the whole group is divided into small groups of 3-4 persons. For a Land-Art-activity every group will get 3-4 miniature figures and for each figure a little piece of plasticine. With the plasticine the figures can be glued to stones or other items. Suitable figures may be from model making (e.g. sportsmen), PLAYMOBIL or LEGO. Alternatively, also cones or other natural items can be used as figures. The rules will be explained by the group leaders: Participants have to build sports arenas in miniature from natural materials in order to create the best possible sports conditions. The thus created Land Art arenas can be photographed and destroyed afterwards. Pictures can be souvenirs, which, for example, can be used for follow-up activities. Pictures are particularly impressive being projected onto a wall with a beamer.

Reflection:

In the reflection process, participants work out which changes have been performed in nature. Participants will be encouraged to establish connections to their own travel and leisure behaviour. In a further step of reflection, the group can work out which interventions have been made in their surrounding landscape.

- What's natural in this landscape, what's man-made?
- Where do I feel comfortable here?
- Why is it, that I feel comfortable here?

Activity C: "Tree-meditation"

Participants younger than 14 years can be asked to find a place where they feel comfortable (for example beneath a tree, next to a stream...). This place shall be perceived through all senses: What do I smell? What do I see? What do I feel?
As a contrast to the activities in the sports arenas a tree meditation can be performed with participants older than 14 years. Every participant will receive an instruction with the text "tree-meditation" (see copy template below).

Reflection:

A "talking-stick" will be passed around the participants in a circle. Everyone who likes may share their impressions of the tree-meditation.

- What kind of sensations were especially impressive?
- What are the consequences of these activities for one's own touristic behaviour?
- How do I want to act differently in everyday life in the future?

Participants can be encouraged to do the tree meditation again on their own, at home.

Copy template:

Tree-meditation

Pick a tree in your surrounding that you like. Then sit down at the tree's foot facing South. Lean against the trunk, tune in by feeling your body and absorbing the atmosphere in your environment. When your thoughts have calmed down you may ask the question for the South and listen to the answers coming up within yourself.

Then you sit down, facing West, etc. For each direction there is a question that refers to the current moment.

Here are the questions:
South: What is connecting me to the landscape? What am I feeling, here and now?
West: Which landscape means "home" to me? Where do I come from?
North: Where do I draw my strength from? What does nature experience mean to me?
East: What's new? Where does my heart feel drawn?

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Pick a tree in your surrounding that you like. Then sit down at the tree's foot facing South. Lean against the trunk, tune in by feeling your body and absorbing the atmosphere in your environment. When your thoughts have calmed down you may ask the question for the South and listen to the answers coming up within yourself.

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North: Where do I draw my strength from? What does nature experience mean to me?
East: What's new? Where does my heart feel drawn?

6. Living in the Alps

6. Living in the Alps

6. Living in the Alps

Target: Reflecting on adaptive strategies of humans, animals and plants in the Alps

Target group: 8 years and older

Dauer: 30-40 minutes

Procedure:

Participants compare objects used by humans to adapt to the Alpine habitat with strategies of certain animals and plants. Adaptive strategies will be compared and reflected on with the help of pictures.

Variant:

Participants divide into small groups. Each group will pack a backpack for a mountain tour. Available items to be packed are depicted on cards. Group discussion on what is important and what can be done without. Subsequently, the group will be looking for counterpart-strategies from flora and fauna.

Material:

- backpack or cloth bag
- two sets of cards with motives (see templates) or, if available, real items

ESD-competencies

Expertise and methodical competence:

- getting to know the extreme environmental conditions in the Alpine region
- learning about adaptive strategies of various animal and plant species and comparing them with strategies used by humans.
- identifying and weighing up risks, dangers and uncertainties.

Self-competence:

- dealing with one's own needs and adaptive strategies
- perceiving and respecting other peoples' needs

Social competence:

- being able to plan, decide and act together

Values:

- responsibility
- consideration
- adaptability
- respect
- empathy
- sufficiency

Important:

- making connections to everyday life and dependencies on nature
- evoking of awe and astonishment at the adaptive strategies of flora and fauna

Detailed Elaboration

ESD competencies

Expertise and methodological competence:

Participants will receive background knowledge on the special environmental conditions in the Alps. These are characterised by extremes, e.g. rugged cliffs and the risks of erosions and avalanches, long winters with snow storms and, depending on the weather, strong sunlight and rainfall. Animals and plants have adapted very well to these special climate conditions. Participants will examine adaptive strategies of humans, animals and plants and find connections. They will be enabled to identify risks, dangers and uncertainties regarding life in the Alps and to draw conclusions.

Self-competence:

Participants realise their dependency on the weather and their surroundings. They perceive and respect their own, nature's and other people's needs. They deal critically with their own adaptive strategy and make connections to their everyday life.

Social competence:

Respectful discussions of all group members reinforces social competence. The activity should focus on learning how to plan, decide and act together.

Aspects of sustainable development

Ecology:

The Alps are a very extreme habitat that requires diverse adaptive strategies from animals, plants and humans. In turn, structural adaption strategies by humans pose a great challenge to the ecosystem of the Alps.

Economy:

In some Alpine regions tourism is the main source of income. Items which cover the human demands of adaption are another important economic factor, like spe-

cial hiking boots, four-wheel-drive, special construction methods such as securing the terrain, avalanche barriers and road works. Consumption, tourism and production must be guided by the dictate of sufficiency in order to promote sustainability.

Society:

To adapt something to oneself – or to adapt oneself to something: The discussion about adaptive strategies raises the question of sufficiency in relation to personal, as well as social and political issues: "Everything for everyone, at any time" or "enough for everyone, always".

Instructions

Activity: "Pack your bag"

Participants are sitting in a circle. In their middle there is a backpack or a cloth bag containing cards with the following illustrations (see template):

Human adaptive strategies: sunscreen, winter coat, sun hat, woollen cap, crampons, ski lift, cable car, climbing rope, gloves, snow boots, climbing boots, tent, sleeping bag, sleeping mat, drinking bottle, lunchbox, sunglasses, blanket, umbrella, antifreeze agent.

Adaptive strategies of animals and plants: edelweiss, marmot and others (see: "background knowledge")

One participant after the other draws a card or an item from the bag and considers to which adaptive strategy the item is necessary, or which is the animal's or plant's special adaptive strategy. Then the cards can be matched together. Which human adaptive strategy is represented by which animal / which plant?

Reflection:

Participants discuss the consequences of human adaption strategies for the Alpine region. Which strategies are:

- especially inspiring or amazing?
- good for personal development, society or economy?
- without impact on the ecological system of the Alps?

Variant:

Additional cards: make-up, flip-flops, beer, Nintendo, cake, camping stove, matches, water bottles, dog with bowl (additional template for the Variant)
Participants gather in groups of four or five persons. Their task is to pack a backpack for a tour in the mountains. The following specifications will be made by the group leaders, which can also be packed in a story-guideline: It's a steep, uneven, precipitous path. On the way there is no possibility to refill water. Partly the path leads over very sunny slopes. The tour lasts over three days altogether and the group has to stay overnight in shelters. The nights are very cold. Even in midsummer snowstorms and heavy rainfalls have to be considered.
Every small group will receive a set of cards, depicting the items mentioned above (apart from the cards with animals and plants, as well as ski lift and cable car – these are only needed for final reflection). Additionally, every group will receive a set with the items of "Additional Cards Variant". These are the items the group can choose from to take to the mountain tour. To make the task more difficult, the group leaders may demand that only a certain number of items can be packed (e.g. 10 pieces). In this way the group will also discuss which items are really necessary.

Reflection:

First all participants compare their packed backpacks in the large group.

- Where are differences to be found?
- Which priorities were set?

Than the participants explain which special needs are met with which item (sun protection, warmth, food, water, security...).
Subsequently participants discuss the consequences of human adaption strategies for the Alpine region.
Which strategies are:

- especially inspiring or amazing?
- good for personal development, society or economy?
- without impact on the ecological system of the Alps?

At the end the group will discuss how animals and plants deal with the extreme conditions in the Alps. The whole group together considers one strategy for each

plant and animal. This is the part where the previously sorted out cards of animals and plants from set 1 will come into play again.

Background knowledge to the topic living in the Alps:

Humans, animals and plants have different strategies of adaption to their surroundings and the climate. Because of climatic changes, these adaptions become more and more difficult in some regions.

In the high mountains animals and plants often have only two months to perform active life processes. Within this short period, they have to grow, reproduce and prepare for the long winter. Furthermore, they have to withstand the extreme prevailing conditions.

Special adaptive strategies of plants:[24]

In the mountains, plants can only survive when they adapt to the conditions there. The higher the altitude, the smaller the plants – this is how they protect themselves from wind and the cold. Just above the ground there is less wind and temperatures are a little bit higher. Typical plants to be found in the barren high mountains are moss, grass, lichen, but also small flowering plants, like gentian.

Edelweiss: Woolly leaves and flowers protect the plant from dehydration and strong sunlight.

Mountain Cowslip (an alpine primrose-species): The fleshy leaves are covered by a wax layer that, at the same time, protects the plant from high UV-radiation and evaporation. They are also able to store water.

Alpine Snowbell: The plant already blossoms when it is still covered by snow. The little light that shines through the snow cover in spring is enough for the flower to bloom. The cell sap of early Alpine spring flowers contains more "antifreeze" than comparable plants in the valley.

[24] Wendelberger, E. (1984): „Alpenpflanzen", BLV-Verlag, München.

Alpine Poppy: The plant possesses a long and flexible taproot which is five times longer than the one from comparable species in the valley. This is to anchor the plant in the rock debris and to reach the nutrient-rich soil layers deeper in the ground.

Special adaptive strategies of animals:[25]

Ibexes: The hooves of these animals are perfectly adapted to their environment. On the outside there is a hard rim, on the inside there are soft, adhesive pads that allow good grip even in the steepest slopes.

Marmots: Their hibernation lasts for six months. During this time their body temperature drops to 5° C. Marmots wake up only when the snow thaws. Adaption to food shortage and the cold.

Alpine salamanders: These are the only viviparous European amphibians. The young ones can stay and grow in their mother's womb up to three years. Due to the short vegetation period in the mountains, it is important that new-borns are very well developed. The Alpine salamander's black skin colour helps the animal to absorb the warmth of sunrays in a better way.

Alpine rock ptarmigans: These birds are especially adapted to the prevailing circumstances above the forest line. Their brown summer plumage changes to white in autumn. Their feathered feet and toes keep them warm and facilitate walking in snow.

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[25] Brendel, U. (2006): Die Tierwelt des Nationalparks Berchtesgaden, Berchtesgadener Anzeiger, Berchtesgaden.

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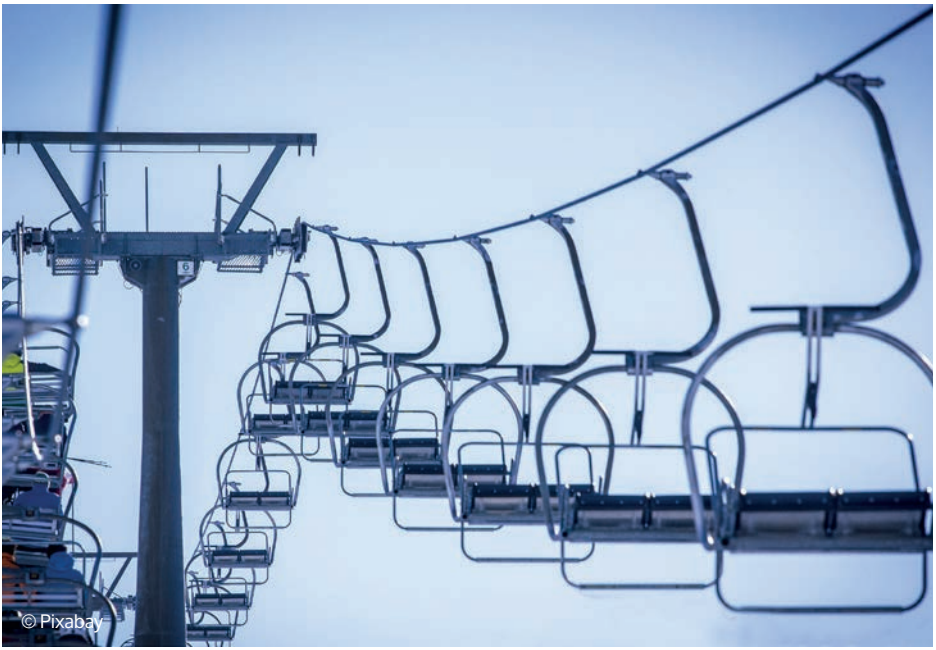
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Template:
additional cards for variant

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ALL PURPOSE
EZ FLAMES
32
WOODEN PENNY
MATCHES
CAUTION: CLOSE BOX BEFORE STRIKING
KEEP AWAY FROM CHILDREN
AVISO: CIERRE LA CAJA ANTES DE ENCENDER
© Pixabay


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7. Working in the Alps

7. Working in the Alps

Target: Insight in the changes of the working world in the Alps

Target group: 8 years and older

Duration: 30-40 minutes

Procedure:

On a demarcated out- or indoor playing field cards with questions about occupations in the Alps are distributed. Participants split up in small groups and, according to certain rules, look for the cards to answer the questions. In this dice-quiz the participants have to show their skills, be quick and clever and they work in teams together.

Material:

- big dice(s)
- game board: sheet of A1-paper or cardboard and crayons
- two sheets of questions/answers (see template)
- 30 question cards (see template)
- demarcations for the game leaders' field
- playing figures
- cards for pantomime (see template)

ESD competencies

Expertise and methodological competence:

- getting to know old Alpine work skills
- Why do some professions no longer exist today and what is their modern-day equivalent?
- learning about the dependence on others through division of labour

Self-competencies:

- discovering one's own skills

Social competence:

- recognising other peoples' skills
- cooperation
- teamwork

Values:

- cooperation
- autonomy
- independence
- respect

Important:

Changes always have two sides: Many occupations have been replaced by new techniques and new work fields have developed.

Detailed Elaboration

ESD-competencies

Expertise and methodological competence:

Participants get to know a method by which they will playfully learn about old and new professions in the Alpine region. They also find out why the old ones are no longer needed. The game gives an impression of the diversity of occupations in the Alpine area and analyses why many of these do not exist anymore. Participants look for today's equivalent of those professions. They become aware of the loss of special skills and traditional knowledge that are related to those old occupations. They will find answers to the question of how the professional world in the Alps may evolve in the future.

Self-competence:

Participants will analyse how this development is connected to their own consumer behaviour. They think about which craftsmen are still working in their surroundings. They become aware of the dependency on other people, who live possibly far away, when certain skills are no longer available at home. Participants will begin to wonder: What are my own skills? What am I good at?

Social competence:

Recognising and appreciating other peoples' skills. In small groups the game will promote the ability of cooperation, all questions will be answered and presented in teamwork.

Instructions:

Setting up the game:

- An A1-cardboard serves as game board, onto which participants sketch a mountain scenario with 30 playing spaces.
- The game board will be laid out on the ground.
- The laminated playing cards will be "hidden" on the playing field.
- With jackets or backpacks a field for the team leader will be marked out. For big groups there will be two team leaders and two team leader fields.
- The group splits up into teams of four to five members.

Game:

- Every team puts their gaming character to the starting position.
- The teams roll the dice and move their gaming character on the gameboard. Than they look for the card with the respective number on the field, read the question on the place the card had been found on, leave the card behind and walk over to the game leader's field, discussing the answer.
- Together, the group enters the game leader's field, states the question and presents the answer.
- If the answer is correct, the group will be allowed to roll the dice again and advance their gaming character by the number of the dots shown on the dice. If the answer is wrong, their playing figure has to move back one playing space and they have to search for the card with the number written on that space.
- The teams may roll the dice(s) and search the cards at the same time. But, please note that only one group at a time may enter the game leader's field. The other groups have to wait until the field is clear again.
- The game ends when the first team has answered the last question.

Final game activities:

The game ends with a pantomime game. For this, all cards with the professions introduced will be distributed to the participants. There are two cards for each profession. In turn, the participants will mime the profession shown on their card. Finally, the pairs have to find each other without talking.

Reflection in pairs or in the whole group:

- Does this profession still exist? If not, by which profession has it been replaced?
- What do you like about these professions? Which are the negative sides of them?
- What profession would you like to have in the future? Would you be able to work in this profession in the Alps? Which kind of infrastructure would be needed to do so?
- What will the professional world look like in 50 years? Which professions will probably no longer exist? Which ones will be new?

Questions and answers, to be printed for the game leaders:

1. Which organisation helps others in cases of emergency in the mountains? **Mountain (or Alpine) rescue service**
2. What do you call the person who looks after accommodation and food for the guests up in the mountains? **Cabin landlord**
3. If you are unfamiliar with the mountains, you should bring this person! **Mountain guide**
4. These mountain researchers measure, for example, the temperature inside a rock and the ground to find out if the ice is thawing in the ground. Usually they have studied: **Geography, Geology**
5. Construction worker on the mountains: How is it possible to bring excavators and containers to the construction site if there are no roads high up there? **By helicopter**
6. These persons earn their money mainly in wintertime, when there is snow and tourists come to visit: **Ski instructors**
7. When skiing, the Alps can be a dangerous place. Whose warnings shouldn't be overheard in any case? **Avalanche warning service**
8. What do glaciologists do? **They study glaciers**
9. Weather in the Alps can change quickly. Who measures rainfall and other weather data at weather stations in the mountains? **Meteorologist**
10. In the past their most important tool used to be the adze. Today it is the motor or chain saw as well as the milling machine, to mill out the troughs. Which profession are we talking about? **Trough maker**
11. This special kind of hair cannot be found under the hat, but on top of it. Actually, it belongs to an animal. Which animal is meant and how do we call the person who binds the hair together? **Chamois and Gamsbart binder (lit. chamois beard binder)**

12. Not only Alpine women dress up for celebrations. Who or what else is adorned for the Almabtrieb (cattle drive back to the home farm) and with which things? **Cows with wreaths and headdresses by wreath binders**

13. To whom did you go in the past when you needed a new roof?
Shingle maker

14. When fire wood was scarce, people could get other kind of fuel from them. Today, this precious material is still used in the garden. That`s not good for climate protection. Which profession is meant?
Turf cutter

15. With crow bars and chisels these peculiarities were broken out of stone slabs. But before it became a useful tool, the craftsman we are looking for had to work on this piece in a grinding mill. What profession is it?
Whetstone maker

16. His craftmanship has been around for many millennia. From clay he produces plates, bowls, cups and many other utensils. **Potter**

17. This profession used to be widespread, especially in forest regions. With a sharp knife he transformed wood into useful and decorative objects.
Woodcarver

18. This profession requires a great deal of craftmanship and an excellent musical ear. From wood and/or metal he produces things that music can be played on.
Instrument maker

19. For the trousers that he sews, he does not need cloth, but leather. At least one of these lavishly embroidered trousers can be found in the wardrobes of every tradition-conscious Bavarian.
Lederhosen maker (lit. maker of leather trousers)

20. He can make many useful things, like bowls, plates, balcony bars, etc., out of wood and a lathe. However, his profession has become very rare since his work has been replaced by computer-controlled machines. **Wood turner**

21. He ferments hops and malt in a huge brewing tank. **Brewer**

22. In the early summer months, who moves to new quarters in a log cabin high up on the mountain pasture, looks after the cows and produces butter and cheese? **Alpine herds- and dairyman**
23. In the past, axe and handsaw were his tools, today he works with the motor saw. **Lumberjack / wood-cutter**
24. Name a profession existing in the Alps that begins with the same letter as your name.
25. **Aktivity:** Find a practical skill of each group member that only this person possesses and no one else (manual skill, handcraft)
26. Name three old handcraft trades that exist in the Alps.
27. Name three reasons why many old professions do not exist anymore.
28. How and where can you learn about old professions?
    In the local history museum

Copy templates for cards on the playing field, please copy and cut

Which organisation helps others in cases of emergency in the mountains?	What do you call the person who looks after accommodation and food for the guests up in the mountains?
If you are unfamiliar with the mountains, you should bring this person!	These mountain researchers measure, for example, the temperature inside a rock and the ground to find out if the ice is thawing in the ground.
Construction worker on the mountains: How is it possible to bring excavators and containers to the construction site if there are no roads high up there?	These persons earn their money mainly in wintertime, when there is snow and tourists come to visit.
When skiing, the Alps can be a dangerous place. Whose warnings shouldn't be overheard in any case?	What do glaciologists do?
Weather in the Alps can change quickly. Who measures rainfall and other weather data at weather stations in the mountains?	In the past their most important tool used to be the adze. Today it is the motor or chain saw as well as the milling machine, to mill out the troughs. Which profession are we talking about?

2	1
4	3
6	5
8	7
10	9

This special kind of hair cannot be found under the hat, but on top of it. Actually, it belongs to an animal. Which animal is meant and how do we call the person who binds the hair together?	Not only Alpine women dress up for celebrations. Who or what else is adorned for the Almabtrieb (cattle drive back to the home farm) and with which things?
To whom did you go in the past when you needed a new roof?	When fire wood was scarce, people could get other kind of fuel from them. Today, this precious material is still used in the garden. That`s not good for climate protection. Which profession is meant?
With crow bars and chisels these peculiarities were broken out of stone slabs. But before it became a useful tool, the craftsman we are looking for had to work on this piece in a grinding mill. What profession is it?	His craftmanship has been around for many millennia. From clay he produces plates, bowls, cups and many other utensils.
This profession used to be widespread, especially in forest regions. With a sharp knife he transformed wood into useful and decorative objects.	This profession requires a great deal of craftmanship and an excellent musical ear. From wood and/or metal he produces things that music can be played on.
For the trousers that he sews, he does not need cloth, but leather. At least one of these lavishly embroidered trousers can be found in the wardrobes of every tradition-conscious Bavarian.	He can make many useful things, like bowls, plates, balcony bars, etc., out of wood and a lathe. However, his profession has become very rare since his work has been replaced by computer-controlled machines.

12	11
14	13
16	15
18	17
20	19

He ferments hops and malt in a huge brewing tank.	In the early summer months, who moves to new quarters in a log cabin high up on the mountain pasture, looks after the cows and produces butter and cheese?
In the past, axe and handsaw were his tools, today he works with the motor saw.	Name a profession existing in the Alps that begins with the same letter as your name.
Activity: Find a practical skill of each group member that only this person possesses and no one else (manual skill, handcraft)	Name three old handcraft trades that exist in the Alps.
Name three reasons why many old professions do not exist anymore.	How and where can you learn about old professions?

22	21
24	23
26	25
28	27

Copy template professions for pantomime, copy 2x

Staff member of the Mountain / Alpine rescue service	Cabin landlord/lady
Mountain guide	Helicopter pilot
Ski instructor	Avalanche warning service
Glaciologist	Meteorologist
Trough maker	Gamsbart binder
Wreath binder	Shingle maker
Turf cutter	Whetstone maker
Potter	Woodcarver
Instrument maker	Lederhosen maker

Wood turner	Brewer
Alpine herds- and dairyman	Lumberjack