

STUDY MODULE: KOLI LANDSCAPE

Summary:

In the study module 'Koli landscape', pupils learn to know about landscapes, and how landscapes form and change through geological processes and human actions. The landscape of Koli is particularly under study.

The module develops thinking and problem-solving skills. Instruction relies on an investigative, problem-centred approach.

The study module is related to the Koli National Park and its Visitor Centre 'Ukko'. The module forms a learning process which consists of several tasks (activities). First, there are orientation exercises to be done at school before visiting Koli. These are followed by a lot of exercises to be carried out during a guided study trip at Koli, after which, the learning process continues at school.

This study module is developed at the University of Eastern Finland, Joensuu. This handbook is written by Seija Juntunen.

Level: 9th grades; 15-16 year old pupils

Objectives: The main objective is to learn to understand how and why landscapes form, reshape and change.

Curriculum links:

Geography

- Finland's map view and landscape: activities 2, 3, 6
- Learning to use and interpret physical and thematic maps and other sources of geographic information, such as photographs: activities 1-4, 9, 12, 15, 20
- Coming to understand the effect on the landscape of factors that reshape the earth's surface: activities 10, 14, 15, 16
- Coming to know and value Finland's natural and built environments; learning to perceive one's own regional identity: activities 2, 3, 5, 6, 18, 20

Other links to the curriculum, e.g. skills to be developed:

- Problem-solving skills: activities 10, 11
- Visual thinking and expression skills: activity 19
- Skills to evaluate the environment from the aesthetic perspective: activity 5
- Skills to move about in the natural environment and observe and investigate nature outdoors: activities 14-18
- Supporting the formation of the pupil's own cultural identity: activities 2, 3, 6, 7, 18, 20
- Group working skills: activities 1, 4, 7, 9-12, 20

Time required: 1-3 hours at school before visiting the Koli National Park, 2 – 2,5 hours in Koli, and 1-3 hours at school after the visit.

Materials needed: At school: coloured pencils, a map of Finland, pictures a variety of landscapes, taken from different parts of the country, pictures of landscapes of pupils' own home region, landscape picture (attachment no. 1), picture of Koli (attachment no. 2). You can look for landscape pictures in magazines and calendars and also ask pupils to look for landscape pictures at home.
At Koli, all the materials needed will be provided by the guide. Pupils need to have proper outdoor clothing during the field trip.

Assessment: The assessment is to address the pupil's learning and progress in the different areas of learning. The pupil's progress and work skills are assessed in relation to the objectives. It's preferable to assess learning during the whole learning process.

Activities / tasks in the learning process:

Topic orientation at school before the visit:

1. Picture analysis: Elements of the landscape
2. Finnish landscapes
3. Different landscapes in different parts of Finland
4. Classifying landscapes, concept of landscape
5. Aesthetic values of landscapes
6. National landscapes
7. Koli as a national landscape

At the Visitor Centre of Koli National Park

8. Short orientation on the topic of landscape
9. Maps representing landscapes
10. Problem-solving: How and why landscapes form and change?
 - a) Natural processes shaping the landscape
11. Illustrating geological time using a rope
12. How and why landscapes form and change?
 - b) Humans changing the landscape
13. Looking to the future: Koli landscape in 100 years' time

Guided field trip at Koli

14. Repeating geological processes that form, reshape or change landscape, investigating how they can be seen in the landscape
15. Interpreting geological maps and figures
16. Making observations about changes in the landscape
17. Developing a positive relationship with the environment
18. Koli National landscape

At school after the visit

19. Visual arts: Koli landscape, memories of Koli
20. Landscapes of the home region

Activities 1-6 are alternative and optional. The teacher may choose suitable exercises for his/her class, depending on previous studies.

Topic orientation at school before the visit

Activity 1. Picture analysis: elements of landscape

Description:	Pupils look for different elements of landscape from the pictures.
Learning objectives:	Learning to interpret pictures. Learning to understand different elements of the landscape.
Time required:	10-15 min
Materials needed:	Printed landscape photos, coloured pencils

Instructions how to carry out the tasks:

Print landscape photos (attachment no. 1). Ask pupils to work in groups, and give a photo to each group. Ask pupils to outline different elements of landscapes by marking them with a coloured pencil. Groups may decide themselves, what elements are to be outlined (e.g. forest, lake, houses, roads, hills, islands..).

Discuss together about the elements and tell pupils that normally elements are categorized as follows:

- topography (hills, mountains, lowlands..)
- water systems (rivers, lakes, seas..)
- vegetation
- human elements, marks of human activities (buildings, roads, farming, forestry..)

Activity 2. Finnish landscapes

Description:	This task is about to discover typical elements of Finnish landscapes. Pupils interpret the pictures.
Learning objectives:	Learning to interpret pictures. Learning to understand about the elements of Finnish landscapes.
Time required:	15-20 min
Materials needed:	Coloured pencils or several landscape pictures (e.g. from magazines or calendars)

Instructions how to carry out the tasks:

Alternative ways:

- a) Ask pupils to draw a typical Finnish landscape. Compare the drawings together: what are the similarities and what are the differences? Discuss the typical elements of Finnish landscapes.
- b) Collect pictures illustrating landscapes taken from different parts of Finland. You can also ask pupils to collect pictures at home. Ask pupils

to compare the pictures: what are the similarities and what are the differences? Discuss the typical elements of Finnish landscapes.

Tell pupils about both the similarities and differences between Finnish landscapes. Typical features of Finnish landscapes are lowlands, lakes and forests. Finland is divided into six landscape regions each of which has its own typical features.

The next task (activity 3) continues with this topic.

Activity 3. Different landscapes in different parts of Finland

Description:	This task is about understanding the landscape regions of Finland.
Learning objectives:	Learning to interpret pictures. Learning to understand the typical features of different landscape regions
Time required:	15 min
Materials needed:	Landscape pictures taken from different parts of Finland, a map of Finland

Instructions how to carry out the tasks:

Show pupils pictures illustrating landscapes taken from different parts of Finland. Tell them that Finland is divided into six landscape regions each of which has its own typical features. Study the regions together if they are unfamiliar to pupils. Ask pupils to name the region from which the landscape pictures are taken. Ask pupils to locate pictures on a map of Finland. Discuss the typical features of different landscape regions.

Activity 4. Classifying landscapes, concept of landscape

Description:	Pupils practise how to classify landscape pictures. Different kinds of landscapes are discussed and the concept of landscape is defined.
Learning objectives:	Learning to classify objects by sorting them. Learning about the concept of landscape
Time required:	15-20 min
Materials needed:	Landscape pictures.

Instructions how to carry out the tasks:

Collect pictures illustrating different landscapes. You can also ask pupils to collect pictures at home. Ask pupils to work in groups and give each group 6-10 pictures. Ask pupils to classify landscapes by sorting them into

groups. Ask pupils to name the groups and explain why they have classified landscapes in a certain way.

Discuss together what differences and similarities there are between different landscapes. Discuss different landscapes: natural landscape, cultural landscape, townscape, rural landscape etc.

On the grounds of discussions, consider together, what is a landscape. Define the concept of landscape. For example: *Landscape comprises of the visible features of an area of land.* Or: *Landscape is natural scenery seen by the eye at one moment.*

Activity 5. Aesthetic values of landscapes

Description: In this task the aesthetic values of landscapes are evaluated and discussed.

Learning objectives: Learning to evaluate the environment from the aesthetic perspective

Time required: 15 min

Materials needed: Landscape pictures

Instructions how to carry out the tasks:

Ask pupils to look at pictures of different landscapes. Ask what kind of landscape they consider to be beautiful. Discuss together the aesthetic values of landscapes. Do values vary with different nations?

Activity 6. National landscapes

Description: Pupils get to know about national landscapes.

Learning objectives: Learning to understand about national landscapes.

Time required: 20 min

Instructions how to carry out the tasks:

First ask the pupils' opinions about what 'national landscape' means. Define the concept of national landscape. For example: *National landscape is a landscape unity which has national significance or status. Finnish national landscape is a landscape which has an essential role in Finnish nationality and which reflects national identity. In national landscape, all characteristic landscape features of a country are present.*

Find out what is the nearest national landscape. What are the typical features (both natural and cultural) of it? On what grounds are the values of that landscape based?

Ask pupils what other national landscapes they know. Show them pictures about different national landscapes from different parts of the country. Discuss national landscapes: what are the similarities and differences?

The topic of national landscape can also be integrated into lessons of mother tongue and literature, visual arts and/or music. Find out how national landscapes are illustrated in literature, visual arts and music.

Activity 7. Koli as a national landscape

Description: Pupils familiarize themselves with Koli, one of the most famous Finnish national landscapes and the target of the planned study trip.

Learning objectives: Orientation towards the visit to Koli. Learning to understand Koli as a national landscape.

Time required: 15 min

Materials needed: Picture of Koli (Attachment no 2)

Instructions how to carry out the tasks:

Show pupils the picture of Koli. Ask pupils to work in groups and consider the following questions:

- What is the landscape of Koli like?
- How does Koli landscape differ from other Finnish landscapes?
- How well-known is Koli landscape amongst Finnish people? For example, do most Finns recognize Koli landscape? Why do you think it is so?

At the Visitor Centre of Koli National Park

Activity 8. Short orientation towards the topic of landscape

Description: This task is about giving a short orientation or revision on the topic. The concept and elements of landscape are discussed. The elements of Koli landscape are viewed and Koli landscape is located amongst the landscape regions of Finland. The status of Koli landscape is learnt.

Learning objectives: Orientating oneself towards the topic of landscape. Learning to understand the elements of landscapes.

Time required: 5-10 min

Instructions how to carry out the tasks:

This activity will be carried out at Koli National Park. The guide will provide all the information and materials needed to carry out the tasks.

Activity 9. Maps representing landscapes: interpreting the map and landscape photos

Description: Pupils work in groups and are given maps and four landscape photos. The photos are taken in the direction of the main compass points from a certain place in Koli. By interpreting the map, pupils decide which photo is taken towards the west.

Learning objectives: Learning to interpret the map and photos and make deductions from them.

Time required: 5-10 min

Instructions how to carry out the tasks:

This activity will be carried out at Koli National Park. The guide will provide all the information and materials needed to carry out the tasks.

Activity 10. Problem-solving: How and why landscapes form and change? Part A. Natural processes shaping the landscape

Description: Pupils are given a series of cards about geological processes that have formed the Koli landscape. Pupils work in groups and sort the cards into a chronological order. Pupils study how Koli landscape has formed and how it has reshaped as a result of geological processes.

Learning objectives: Learning to understand how Koli landscape has formed and changed as a result of geological processes. Learning to solve problems. Learning to interpret pictures.

Time required: 20 min

Instructions how to carry out the tasks:

This activity will be carried out at Koli National Park. The guide will provide all the information and materials needed to carry out the tasks.

Activity 11. Illustrating geological time with the use of a rope

Description: The events of evolution in Koli landscape are compared with the age of the Earth. Huge periods of time are illustrated with a rope. Pupils decide the location of the card on the rope to present periods of time.

Learning objectives: Learning to solve problems. Learning to understand huge periods of time in geology

Time required: 10-15 min

Instructions how to carry out the tasks:

This activity will be carried out at Koli National Park. The guide will provide all the information and materials needed to carry out the tasks.

Activity 12. How and why landscapes form and change?

Part B. Humans changing the landscape

Description: Pupils interpret photos taken from Koli. They look for traces and the impact of humans on the landscapes. They also compare the old and new photos and analyse the changes in the landscape. The old photos have been taken in 1930's and the new photos available showing the same landscapes, have been taken from the same places. This task is aimed to develop pupils' environmental literacy.

Learning objectives: Learning to interpret pictures and use them as a source of information. Learning to understand how humans change the landscape.

Time required: 15-20 min

Instructions how to carry out the tasks:

This activity will be carried out at Koli National Park. The guide will provide all the information and materials needed to carry out the tasks.

Activity 13. Looking to the future: Koli landscape in 100 years' time

Description: Pupils think about how Koli landscape will change in 100 years' time. They consider how life has changed in the last 70-80 years and how it might change in the future. There is also discussion about values and nature protection.

Learning objectives: Learning to stretch one's imagination. Learning to understand and see oneself as a future citizen.

Time required: 5-10 min

Instructions how to carry out the tasks:

This activity will be carried out at Koli National Park. The guide will provide all the information and materials needed to carry out the tasks.

Guided field trip

Activity 14. Repeating geological processes that form and reshape landscape, investigating how they can be seen in landscape

Description: The geological processes and events of evolution in the Koli landscape are repeated during the field trip. Pupils investigate how events and processes can be seen in the landscape. The task is aimed to develop pupils' environmental literacy.

Learning objectives: Learning how to interpret landscapes, and how to see the effects of geological processes in the landscape.

Time required: A few minutes at a time during the field trip, altogether 15 min

Instructions how to carry out the tasks:

This activity will be carried out at Koli National Park. The guide will provide all the information and materials needed to carry out the tasks.

Activity 15. Interpreting geological maps and figures

Description: Pupils interpret bedrock maps, figures and pictures. They find out their location on the bedrock map, and observe how the things shown in the figures can be seen in the landscape.

Learning objectives: Learning to interpret geological maps and figures.

Time required: 15 min

Instructions how to carry out the tasks:

This activity will be carried out at Koli National Park. The guide will provide all the information and materials needed to carry out the tasks.

Activity 16. Making observations about changes in the landscape

Description: Pupils are asked to make observations during the field trip. Observations about changes in the landscape are discussed. Both man-made and nature-made changes are taken into account.

Learning objectives: Learning to make observations about changes in the landscape

Time required: 10-15 min

Instructions how to carry out the tasks:

This activity will be carried out at Koli National Park. The guide will provide all the information and materials needed to carry out the tasks.

Activity 17. Developing a positive relationship with the environment

Description: This activity includes several exercises, which are aimed to develop a positive relationship with the environment. In these exercises, pupils use their senses to observe the environment. Pupils' environmental sensitivity is to be strengthened.

Learning objectives: Learning to use one's senses in making observations. Learning to see the beauty of nature. Learning to respect nature.

Time required: A few minutes at a time during the field trip, altogether 10-15min

Instructions how to carry out the tasks:

This activity will be carried out at Koli National Park. The guide will provide all the information and materials needed to carry out the tasks.

Activity 18. Koli national landscape

Description: The theme of national landscape is repeated or studied more intensely. The pupils experience for themselves Koli national landscape. Some historical points about how Finnish nationality is linked to Koli are also studied.

Learning objectives: Learning to understand Koli as being one of the most famous Finnish national landscapes.

Time required: 10-15 min

Instructions how to carry out the tasks:

This activity will be carried out at Koli National Park. The guide will provide all the information and materials needed to carry out the tasks.

At school after the visit

Activity 19. Visual arts: Koli landscape, memories of Koli

Description: This task is about refreshing memories of the visit to Koli. Pupils draw pictures of Koli landscapes or of their memories of the study trip.

Learning objectives: Learning to express one's own observations and feelings in a visual form

Time required: 15 min

Materials needed: Papers and coloured pencils
(Tape of Symphony no. 4 by Jean Sibelius)

Instructions how to carry out the tasks:

Ask pupils to draw Koli landscape. You can first show some pictures taken from Koli. Ask pupils to observe the following instructions:

How to sketch the landscape drawing

1. Decide what to include in the drawing
2. Mark the horizon on the paper
3. Mark the other horizontal lines
4. Outline the lake, forests and rock
5. Sketch the most important elements (first the large ones, then the small ones)
 - a) in the background
 - b) in the foreground

Pupils can also draw what they remember from the study trip.

If it's possible to get Jean Sibelius' Symphony no. 4, let pupils to listen to it before or while they are drawing. When composing this symphony, Sibelius was inspired by Koli landscape.

Activity 20. Landscapes of one's home region

- Description:** Pupils study landscapes of their own home region.
- Learning objectives:** Learning about the features of their own home region's landscapes.
Learning to respect one's own home region.
- Time required:** 15-20 min
- Materials needed:** Pictures of landscapes of pupils' your own home region.

Instructions how to carry out the tasks:

Study pictures of landscapes taken from your own home region. Ask pupils to work in groups and consider the following questions:

- In what landscape is your home region situated?
- What are the typical features of landscapes of your home region?
- What are the most beautiful things in the landscapes of your home region?

Discuss the answers together.

Also study the necessary geological and geographical studies, for example the planet's internal and external phenomena, to complete the learning process which corresponds with the national core curriculum.