



Inspiring4Biodiversity

# Environmental orientation game

A tool to introduce local and global ecosystems and biodiversity



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Erasmus+

## What is bioorientation game?

Ecosystem Services orientation game is a location-based orientation game. In the game LogQizz app can be used. The orientating game involves locations where players have to answer to the different questions about Ecosystem Services. For example, there is an old fishboat and a question about ecosystem services related to fishing etc. Bioorientation is taking place in one certain area and is presenting life near the lake and how different ecosystems provide their services.

Bioorientation is a game introducing ecosystem services to adults and schoolchildren.

Peipis Center for Transboundary Cooperation has created 15 questions that can be used by the game creator to create bio-orientation paths in a place for the players. There are different ways to create orienteering games. The questions of the Peipis Center for Transboundary Cooperation are formed for creating a LoQuiz orienteering game.

To create a game, the game creator must create a LoQuiz <https://loquiz.com/> account and join the appropriate package. If you only want the game for a few groups and for a short time, you can use the trial version. Later, the use of the application is paid by the game creator. Participation is free for players.



Photo: orientation game players at Alatskivi in Estonia (photo taken by players)



## Target groups

Target group of the methods:

- **Young adults.** The method involves active moving and orientation. It is also suitable for young adults with children. These are for example families where there are children 6- 16 years old. This method can be like family learning activity. Most of the target group is living in the towns and they are interested in outdoor activities that are possible to do as a family. These parents have higher education and they are comfortable with technology. They are concerned about the environment.
- **Elders/seniors** – the target group includes grandparents who are interested to do something educational with the younger generation. The grandparents are living both in urban and country areas. They are rather well informed about the environmental things and are interested to give some advice to younger generations.
- **Environmental educational centres** – the target group to whom are also being disseminating the games and tools and other environmental educational materials. These centres are also using these tools to organise their programmes.

## Learning goal of the tool

The learning goal is to introduce what are ecosystem services and to make people understand the richness of such “services” that nature offers us.

The main four ecosystem services are:

- **Provisioning services** are the products obtained from ecosystems such as food, fresh water, wood, fiber, genetic resources and medicines.
- **Regulating services** are defined as the benefits obtained from the regulation of ecosystem processes such as climate regulation, natural hazard regulation, water purification and waste management, pollination or pest control.
- **Habitat services** highlight the importance of ecosystems to provide habitat for migratory species and to maintain the viability of gene-pools.
- **Cultural services** include non-material benefits that people obtain from ecosystems such as health, spiritual enrichment, intellectual development, recreation and aesthetic values.

**GOAL:** To introduce what are ecosystem services and to make people understand the richness of such “services” that nature offers us



An example is the orientation game route in R pina, in Estonia. The Biorientation route was created near the lake and in the park of R pina manor. The aim was to introduce the life near the lake and the different ecosystem Services.

Orientation is a good motivation for people. Many people are worrying about the physical activity. Orientation game is like two in one. People can do some sport and get some new information.

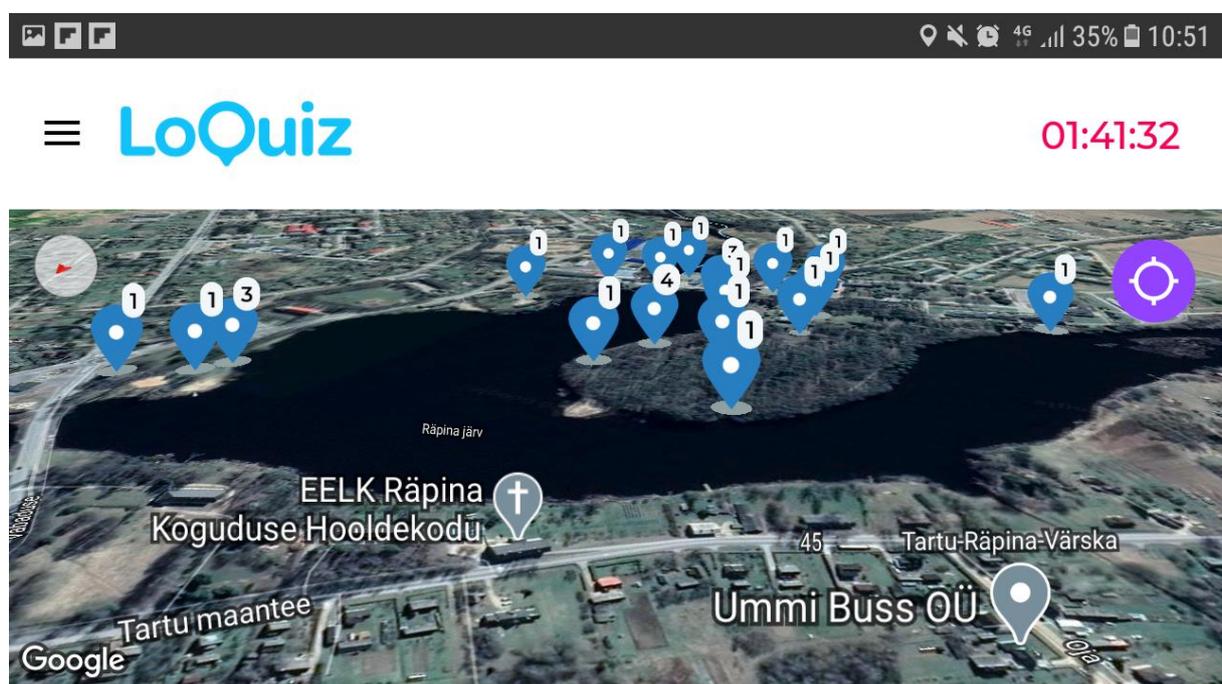


Photo about question situation in R pina in Estonia

## Learning content

The learning content of the tool is:

- To introduce local and global ecosystems and biodiversity / how they are interconnected.
- To introduce different ecosystems and species.
- To use different knowledge and skills to protect biodiversity and to use it environmentally friendly.
- To develop a positive vision of environmental protection and environmentally friendly consumption.



## Technical description before creating the game

Creating Loquiz biorientation route is very easy. You need to make an account in the <http://loquiz.com> webpage and create a rogain-type game. It enables to create an orientation game with different game types. For example, you need to click on the right answer or to write just some words or numbers.

The orientation game questions enables also to add virtual reality with the pictures. The orientation points are appearing only to the smartphone screen when a player reaches to the question area that is about 10 meters around the question selected point. Then the question appears to the player.

To create a game, the game creator must create a new game. It is good to use the available game like ROGAIN to create a bio-orientation track. Instructions for creating the game can also be found on YouTube, e.g. <https://youtu.be/Jj-Jy1SfpCY>. Having created a new Rogaine, the creators of the game can enter the questions of the Peipsi Cooperation Center.

## How to play?

The game creators need to create a Game guide for players. You can use the following:

1. The game requires a smartphone.
2. Download the LoQuiz app to your smart device.
3. Go alone or invite friends.
4. Check that the GPS is working on your phone.
5. Dress warmly.
6. Launch the Loquiz app and log in.  
To do this: username / username: eco-injection (this is an example name)  
password: 1993 (this is an example code)
7. Click "Start."
8. Write the name of the team and the team names of members.
9. Start the game.
10. Select the first point to move to. The order of passing points is not important.
11. When you get close to a point, a question appears on the screen. Answer the question.
12. Move to the next point.
13. Search for points until all track points have been passed.



14. When you have finished all questions, the game is over.

## **Players preparation before the game**

The Peipsi Cooperation Center has created questions that introduce ecosystem services. Depending on the question, you can select different types of questions by the LoQuiz application. Explanatory text can be added to each question. Here are some questions, and what is the right place for that question.

The correct answer is marked in green.

When using photos for augmented reality issues, it is necessary to use photos with a transparent background.

Before going on a path, it must be remembered that an ecosystem is called through nutritional relationships associated organisms and environmental conditions that constitute self-regulatory and developing whole.

Ecosystem services or eco-benefits are services and goods. In short, the benefits that each ecosystem offers to people, society and the economy. Ending the goods or services offered by an ecosystem will decrease the quality of human life.

Eco-benefits are divided into four groups:

- **Provisioning benefits/services**- goods that people can consume directly. For example, food, animal feed, medicinal plants, drinking water, washing water, irrigation water, fiber, energy, wood, air, etc.
- **Regulatory benefits** - services that affect people in the appropriate towards climate, water, air and soil quality, water resources, floods, but also pollination.
- **Support services** - services from ecosystems such as metabolism, soil formation, photosynthesis, habitats.
- **Cultural benefits/services** - this is an opportunity to rest, relax and play sports in nature, gain new knowledge and gain inspiration to practice art.

## **Questions for the game**

- 1) What is an ecosystem?
  - a) Animals and plants that are living on the nature protection area.
  - b) Organism depending on each other.



- c) The relationship between different organisms and their habitat through dietary relationships.

**Location:**

A natural or semi-natural place is suitable for this question. E.g. park, roadside, garden, log, etc.

**Explanation:**

An ecosystem identifies nutritional relationships associated organisms and environmental conditions that are self-regulatory and developing. Specifically, an ecosystem is an area of organisms and a network of relationships and interactions that encompass their environment. The ecosystem consists of living and non-living elements of nature that are close to each other in connection.

**2) What is an ecosystem service or eco-benefit?**

- a) The benefits that ecosystem is providing for people and businesses
- b) The benefits that living nature in the ecosystem is providing for people and businesses
- c) The benefits of unanimated nature in the ecosystem is providing for people and businesses

**Location:**

A natural or semi-natural place is suitable for this question. E.g. park, roadside, garden, log, etc.

**Explanation:**

Eco-benefits define goods and services, i.e. the benefits that ecosystem offers to individuals and businesses. More specifically, eco-benefits are all these material things and intangible phenomena that increase human well-being and business profits. The benefits, that for example the lake ecosystem offers, are actually a considerable number. For example, it supplies us with food (fish, aquatic plants, etc.), regulates water quality (cleans the lake wastewater), provides habitat for different species (fish, aquatic plants and animals) and offers people the opportunity to relax (swim, fish, watercraft move, etc.).

**3) What ecological benefits do decaying leaves offer?**

- a) Soil organic matter formation
- b) Soil anorganic matter formation
- c) Soil cleaning



**Location:**

A place near a tree where orienteers see the leaves.

**Explanation:**

Soil organic matter formation is an ecosystem benefit that belongs to the group of support benefits. Soil formation (in other words also pedogenesis) is a physical, chemical and biological processes complex in which rocks crumble and form an inorganic part of the soil and the biological material decomposes, and forms an organic part of the soil. Soil formation is mainly influenced by climate (including precipitation, temperature, wind), but also properties of source rocks, soil relief, plants, fungi and bacteria. Soil organic matter or humus is formed by a variety of deposits deposited on the ground decaying trees (thorns, leaves, cones) and plant debris, i.e. rot. Humus is food for both plants and soil biota.

**4) What type of renewable energy does the wind produce?**

- a) Fog energy
- b) Wind energy
- c) Cloud energy

**Location:**

Anywhere

**Explanation:**

Wind energy is a type of renewable energy in which the kinetic energy of wind is converted into mechanical energy or electricity. It is a supplying eco-benefit. Wind energy is converted into a mechanical example by windmills or wind turbines and into electricity by wind generators or wind turbines.

Wind is not constant, so it must either be used in combination with other energy sources or store energy; for example, for chemical energy in battery banks or for mechanical energy by pumping water to higher storage facilities. However, when converting energy, a certain amount of heat is always lost.

**5) Create one 4 real nature inspired poem! And read it aloud.**

**Location:**

Anywhere

**Explanation:**

Getting inspiration from nature belongs to the group of cultural benefits of the ecosystem.



The natural environment is very closely linked to visual culture. Photo artist Maiu Kurvits has written in Friends of Nature No. 3 of 2003: "Nature has always been the greatest source of inspiration for creators of all kinds of visual culture. All kinds of initial impulses usually come from nature. Rural people are united by a similar background and connection with nature. When they later move to cities and spend most of their time indoors, they are extremely busy and reserved. However, they have a memory of nature. When they get back to nature from time to time, they try to save and store it as much as possible for themselves. Photography is the first way to do that." (Refereed) Source:

- 6) **There are many different eco-benefits in forests. When talking about a habitat service, whose place of residence is meant.**
- a) Human habitat
  - b) The habitat of wildlife, including man
  - c) **Wildlife habitat excluding human**

**Location:**

Near some trees or in the park

**Explanation:**

Ecosystems provide plants and habitats for animals. There are an extraordinary number of species in some habitats that make them genetically more diverse than others; they are called biological diversity.

- 7) **When bees fly from flower to flower, they collect the nectar or pollen they need for their livelihood, but what do they do with the flowers of the plants?**
- a) Hurts them
  - b) **Pollinating flowers**
  - c) Watch the flowers

**Location:**

If possible, near flowers. For example meadow, park, some place some natural or semi-natural areas in bloom.

**Seletus:**

This is a regulatory eco-benefit. These are services that affect the climate, water, air and soil quality, water resources, floods, as well as pollination in the right direction for people. Pollination is the transfer of dust grains to the cervix or seminal vesicles. Bumblebee covered with pollen.

Pollination is usually followed by fertilization. A distinction is made between self- and extraneous pollination. In the case of self-pollination, the dust grains



come from the same plant, and in the case of extraneous pollination, from another plant. Many flowers are pollinated by the wind (wind pollination). Others need animals for this (animal pollination), mostly insects (insect pollination).

**8) Who breaks down trees without an ax?**

- a) Frost
- b) Woodpecker
- c) Wind

**Location:**

Near some tree on in the park or in the forest.

**Explanation:**

Getting inspiration and also many proverbs are being understood thanks to nature and belong to the group of cultural benefits of the ecosystem.

**9) Sit on a bench or lawn and rest. Enjoy nature around you and take a nice picture!**

**Location:**

Anywhere

**Explanation:**

The group of cultural eco-benefits is very wide. These include the intangible benefits of nature, such as recreation in nature, aesthetic pleasure, sports and the development of mental health, spiritual experiences, including gathering inspiration for art creation, research and learning. Throughout human history, nature has been associated with culture, been a source of inspiration, influenced language, art and religion.

**10) Put the owl on the tree!**

**Location:**

Somewhere by a tree. It is good if the tree has a cavity.





**Explanation:**

Habitat service is an ecosystem support service. Ecosystems provide habitats for plants and animals. Some habitats have an extraordinary number of species, which makes them genetically more diverse than others; these are called biodiversity ranges.

**11) Ohhooo, is it really snow? Take a beautiful photo of yourself or your friend!**



**Location:**

Anywhere

**Explanation:**

Precipitation is a benefit to the ecosystem, but as it inspires people, it can also be a cultural benefit, for example. Fresh snow can inspire people to practice art.

**12) What is richness of habitat?**

- a) Knowledge of an experienced elderly person
- b) Biodiversity
- c) Buying many things to home

**Location:**

Anywhere

**Explanation:**

Biodiversity, or richness of habitat, is a term we use to emphasize the richness of nature. It includes a large number of animal and plant species, their habitats



and genes. All of this is connected to the physical environment, forming ecosystems that support living organisms, including us. We cannot survive without nature, and yet we too often take it for granted. Due to biodiversity, we have many different ecosystem services.

**13) Look around and do you see anyone strange? Take one photo!**

**Location:**

Anywhere



**Explanation:**

We are all special. We are all part of nature. Protect nature and care for each other. Some animal are completely white. They are called Albinos. It is a congenital pigment deficiency or leucism. Leucism is a condition similar to albinism, but it does not affect eye color or vision. It's nothing if someone is a little different, we all need a place in this life

**14) Look! Catch the crow in the picture!**



**Location:**

Anywhere

**Explanation:**

Biodiversity plays an important role in ecosystem services. As biodiversity



declines, some ecosystem services may disappear. Crows live on all continents except Antarctica and southern South America. There is no consensus on the distinction between crow species and subspecies. There are more than 60 species of crows. More than 10 extinct species are known, most of which have become extinct as a result of human activity. Crows are not demanding of habitat and food. They are mostly mixed and omnivorous. Therefore, several species of crows are well adapted to human activities, living in cities and feeding on human waste. The crow plays an important role in the ecosystem.

**15) What is the most common natural material in clothing today?**

- a) Cotton
- b) Linen
- c) Wool

**Location:**

Anywhere

**Explanation:**

Cotton and other materials from which people make clothes are supplying goods - goods that people can consume directly. For example, food, animal feed, medicinal plants, drinking water, washing water, irrigation water, fiber, energy, wood, air, etc. Cotton plants grow as shrubs in tropical and subtropical areas. Cotton fibers are spun into yarn or thread to make soft and breathable textiles. Cotton is the most common natural material in clothing today.



## Impressum

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