

## Unit 09

Landscape & Climate Change  
Adaptation in Education

# Landscape Is a Network

**Green areas, flows, biodiversity**

**INTRO:** Landscape connections are crucial for biodiversity and ecosystem interactions. Today, the ecological system is threatened by human activities that compromise the landscape quality, especially in the context of climate change.

AGE GROUP

**6–11 years**

DURATION

**5 lessons  
(45 min each)**

+ a field trip (suggested)

LINKS TO CURRICULUM

Science

Technology

Art

Geography

Civic Education

History and Social Studies

# Legend

## Layout orientation

Head with logo

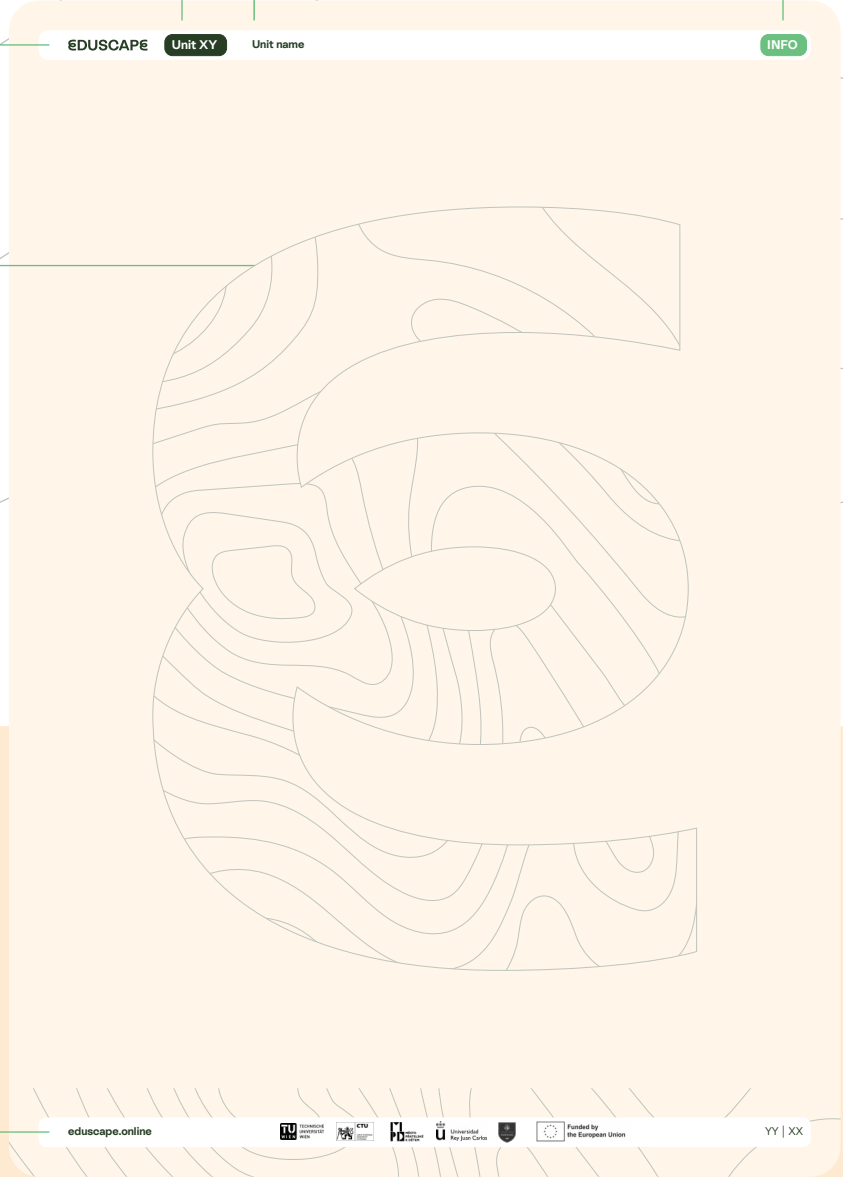
Unit number

Unit name

Info about current page

Page content

Footer with web link, logos of partners, EU, current page & full page counter



## Content icon

for teachers

for students

references

## Phase of the Unit

gaining knowledge

analyzing

creating



# Structure

## Introduction

01

What is Landscape?

02

What does the Landscape Consist of?

03

European Landscape in a Changing Climate

## History, Culture & Heritage

04

Agriculture Transforms the Landscape

05

Landscape as a Chronicle

06

Landscape through My Eyes

## Landscape as a Resource

07

Tracing what We Eat

08

Landscape as a Source of Materials & Energy

09

Landscape is a Network

## Nature Designs

10

River Landscape

11

Plants as Partners in the Challenge of Climate Change

12

Where Landscape is Growing Wild

## Humans Design

13

How to Build a City? Urban Landscape

14

Proximity Landscapes

15

Into Action

# Landscape Is a Network

**Landscape connectivity enables the internal/external movement of humans and other animal and plant organisms and also concerns movement in and through a landscape.**

**The landscape is made up of various connections: natural, ecological/green areas, large parks, places with animal or plant biodiversity, hydrographic elements such as the sea, rivers, ditches etc. or green linear roads/infrastructures etc.) and anthropic.**

As we know, the influence of human activity, industrial development and large transport infrastructures (roads, airports, railways, etc.) have an impact on the landscape, its natural elements and the capacity for movement within it. These impacts threaten the biodiversity present in a natural landscape, weaken natural and ecological connections and limit the landscape's ability to cope with environmental and climate challenges. This means that it is no longer able to provide all the ecosystem services that humans need, such as controlling pollutant gases, absorbing rainwater, producing food and regulating temperatures, to name but a few. An interconnected natural and ecological system is capable of counteracting the consequences of human activity and hindering the progressive impoverishment of biodiversity.

The unit focuses on learning the fundamental elements of the ecological network to realise that landscape design and the enhancement of networks are imperative actions for nature as well as for man. By observing the natural and anthropic elements and connections of the landscape through images, photographs and digital tools (e.g. Google Earth), students will learn to identify and assess the different connections (ecological, anthropic, natural, etc.), the current state and the state of health (quality) of the ecosystem networks in the territory.

## AGE GROUP

**6–11 years old****ENVIRONMENT**

Classroom/School Garden/  
Landscape

**TIME REQUIRED**

5 lessons (45 min each)  
+ field trip (suggested)

**LINKS TO THE CURRICULUM**

Science, Technology, Geography,  
Art, History and social studies,  
Civic education

**KEY WORDS**

Landscape, ecological  
networks, connections,  
biodiversity, ecosystem services,  
infrastructures, mobility,  
climate change and adaptation,  
sustainability, process-based  
learning

**GOALS**

Students will learn that:

- Landscape allows for multiple connections at large and small scales: ecological, flora-fauna, etc.;
- Human beings have an impact on the physical-natural environment (anthropogenic footprint) that alters the ecosystem balances that form the basis of human life/health also feeding into the ongoing climate imbalance and the impacts of climate change (cause-effect relationship).

Students will also acquire methodological and awareness skills such as:

- Ability to read and identify different types of connections in the landscape;
- Capacity to identify protection actions, enhancement of natural resources and ecological networks to limit landscape fragmentation.

**INTENT – CONNECTION TO CLIMATE CHANGE ADAPTATION AND MITIGATION**

Students will therefore be motivated to look critically at the landscape they inhabit, recognise the system of relationships and connections important for preserving biodiversity, promoting a sustainable, respectful lifestyle and counteracting climate change starting with everyday actions in our neighbourhood landscape. The contents aim to encourage a high quality of urbanism and landscape, reasoning and recognising the different green

areas that exist in our landscapes to preserve them, connect them and understand their importance against climate change.

### ABOUT TOPIC | CONTENT OF THE DIDACTIC UNIT

The unit intends to raise awareness of and recognise the types of connections in the landscape of our daily life – human, natural and ecological – to understand their relationships.

The unit focuses on landscape connectivity that enables the internal/external movement of humans and other animal and plant organisms and also concerns movement in and through a landscape.

Through the proposed activities, the student will learn to recognise and identify anthropic elements (railway line, public transport line, motorway network, etc.), ecological and natural networks (green areas, large parks, places with animal or plant biodiversity, hydrographic elements such as the sea, rivers, ditches, etc., or green linear roads/infrastructure, etc.) and understand the value of their interaction in promoting biodiversity.

It is important to understand that reduced landscape connectivity and excessive anthropogenic impact negatively affect biodiversity, natural habitats of flora and fauna, the quality/quantity of ecosystem services provided, and the quality of the landscape itself by reducing the ability of the landscape and natural elements to mitigate/adapt to climate change.

The learning process is based on stimulus-action, prompting the student to develop the ability to understand current problems, reflecting on the causes and possible good practices or actions to counteract them.

By observing the natural and anthropic elements of the landscape through images, photographs and digital

tools (e.g. Google Earth), students will learn to identify and assess the different connections (ecological, anthropic, natural, etc.), the current state and the state of health (quality) of the ecosystem networks in the territory. Students will therefore be motivated to take a critical look at the landscape they inhabit, recognising the system of relationships and connections that are important for preserving biodiversity, promoting a sustainable, respectful lifestyle and counteracting climate change starting with everyday actions and lifestyles.

# Landscape Is a Network

## I. MOTIVATION + ACQUIRING BASIC KNOWLEDGE

### Activity 1

#### What Is a Connection

The landscape is made up of different connections: natural, ecological and anthropic. Pupils acquire the first knowledge of the primary concepts of connections, also the definitions related to biodiversity.

### Activity 3

#### Look at the Landscape into the Landscape

Outdoor activity is important to recognize the connections and the landscape that surrounds us. Pupils recognize and identify the observed elements by also drawing on a map.

## III. DESIGNING SOLUTION + SHAPING / DESIGNING SOLUTION

### Activity 6

#### Present the Results

Understanding the different connections helps you understand who passes through them and why these landscape elements are important and need to be as connected as possible.

The structure proposed here is a baseline. It can be adapted to the specific needs of the subject being taught. The Unit consists of 5 activities and experiments to be carried out inside and/or outside the classroom, depending on the available tools and at the discretion of the teacher. In line with the project methodology, the Didactic Unit is split into three learning moments:

### Activity 2

#### Look at the Connections

Pupils recognise anthropic and ecological connections hypothesising the value of their interactions to promote biodiversity.

## II. MAPPING THE FIELD + ANALYSIS, PROBLEM DEFINITION

### Activity 4

#### Analysing the Landscape Which I Live in

Understanding the landscape it is necessary to identify the quality of the natural, ecological and anthropic elements of the connections. Students identify and present their considerations on landscape quality.

### Activity 5

#### Improving the Connections and Landscape I Live in

Having acquired a knowledge of the place, and the existing connections, pupils define simple objectives and actions to improve the landscape.



# Session 1

**Motivation  
+ acquiring basic  
knowledge**





## Activity 1

**TIME REQUIREMENT:**

45 minutes

**GOAL:**

The pupil recognises the concept of connection to be applied in landscape.

**TOOLS:**

game, drawing, powerpoint, writing, etc.

## What Is a Connection

**Description:**

1. The teacher introduces the primary concepts of connectedness (natural, ecological and anthropic), accessibility with the support of images, photographs and digital tools (e.g. Google Earth), also taking up the definitions of biodiversity, and natural habitats of flora and fauna.
2. To fix the concepts, the teacher organises one or more engaging games for the students, in groups:
  - The teacher passes out a sheet where everyone adds a word or a drawing that represents the elements of their landscape, trying to generate a single drawing. For example, a child who plays football will draw a ball in his gardens, one who likes to read a book in a park or write a sentence from a text he likes, a child who walks on the beach, etc. The result will be a “collage” (es. Fig. 1) of the landscape and the class environment that has been enriched through the passage of different subjects (pupils) that functioned as connection. Biodiversity is nourished by interactions with other subjects that are only possible through connections. Once finished, the teacher asks the students what that collage represents:



Fig. 1

Understanding the concept of biodiversity.

Example of 'collage' drawing enriched by each student. Credits: 'Drawn together' project available at: <https://www.thegamecrafter.com/games/drawn-together>



it represents the class and, at the same time, the landscape, which is made up of different elements to each other. Only if connections are made between them then the ecosystem is productive. If they were all quarrelling with each other and there were no connections then they could not be considered a group. So it is with the concept of biodiversity in landscape.

- At this point, each teacher, depending on the subject, can use this 'collage' to introduce the concepts of biodiversity (science), natural, ecological and anthropic connections and environmental impact (technology), historical-artistic-literary contaminations (languages, art), etc. Teachers can use the cards with pictures of different landscapes of connections.
- The teacher illustrates the function of connections, anthropic, ecological and natural, which enrich the landscape around the students by encouraging dialogue on the value of connections, their meaning and the value of biodiversity, which is only possible through healthy interactions between subjects, networks and connections.



Activity 2



**TIME REQUIREMENT:**

45 minutes

**GOAL:**

Landscape and outdoor drawing skills and techniques  
Mapping the landscape connections

**TOOLS:**

photos, satellite images, historical cartography, digital map navigation (i.e. Google maps), field trips etc.

## Look at the Connections

**Description:**

The students, divided into groups or individually, will be provided with simple maps/images (2D, 3D) of different contemporary landscapes and local contexts on which to identify the elements of connection (green areas, large parks, places with animal or plant biodiversity, hydrographic elements such as the sea, rivers, ditches etc. or green linear roads/infrastructures etc.). Each group (or the whole class) will be assigned a theme for analysis: bees, insects in general, adult humans, children, spontaneous vegetation, agricultural vegetation, mammal animals, birds, road transport, possibly rail transport etc. according to the subject taught.

Based on these areas of research, the pupils will have to ask themselves what is transported along the landscapes they look at and through which connections, the table below can be used as a guide.

Question	Answer	Evaluation (1–5) of connection quality
Are they “areal” connections (e.g. green areas for insects and animals)? Or linear connections? (e.g. roads, rivers etc.)?		
Which elements are transported along these connections (e.g. pollen or insects for vegetation; tools and people for transport)?		
...		

At this point each one can present his/her work, alternatively, the class can list the elements to be checked during the inspection if you decide to continue with the next activity 3. An example: the group dealing with insects decide to monitor the presence of insects, the places with the greatest density and the presence of structures to accommodate them (insect huts, hollow trees, etc.) or, on the contrary, which limit their proliferation.



# Session 2

Mapping the field  
+ analysis, problem definition





## Activity 3

**TIME REQUIREMENT:**

45 minutes

**GOAL:**

- Landscape and outdoor drawing skills and techniques
- See the landscape connections

**TOOLS:**

photos, satellite images, historical cartography, digital map navigation (i.e. Google), field trips etc.

## Look at the Landscape into the Landscape

**Description:**

The teacher chooses a place particularly rich in environmental and human connections to go to for a day of field studies and nature walks, providing students with a printed map of the place to visit (downloadable from Google Earth).

The students mark linear connections (paths, roads, rivers etc.) on the map with a line and areal connections (green areas, cemented patches etc.) with a colour. The attached legend (Fig. 2) can be used as a reference. The final paper can be a common poster or an A3 or A4 map per student. If the previous lesson was also conducted, the students will also have indicators with them to assess according to the specific target chosen or assigned.

**Legend**






	<b>Linear connections</b>
	<b>Areal connections</b>
	<b>Strategic point (pole)</b> e.g. an alverare for insects, a service for humans, a station form vehicles...
	<b>Sighting ...</b>
	<b>Other relevant alert ...</b>

Fig. 2

Basic legend, which can be implemented as desired, for the graphical identification of anthropic/natural connecting elements in the landscape, whether linear or areal. Source: Unicam Team (EDUSCAPE)



## Aktivity 4

**TIME REQUIREMENT:**

45 minutes

**GOAL:**

- Understanding of the relationships between the natural and anthropic systems: local impacts, global effects
- Nurturing critical sense in students and teamwork
- Identify the healthy elements of the landscape and the elements that cause problems

**TOOLS:**

drawing, oral or digital presentation, writing, critical understanding, etc.

## Analysing the Landscape Which I Live

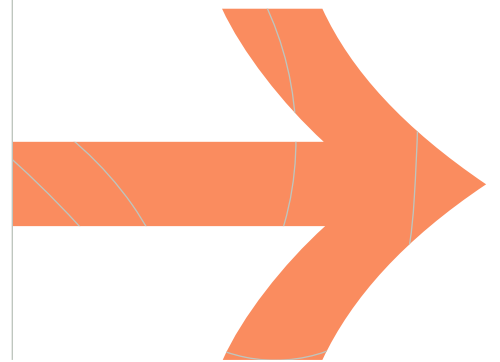
**Description:**

Following the mapping and/or the field visit, the pupils individually or in small groups will indicate and present during a discussion led by the teacher the elements of quality (presence of parks, forest areas, agricultural areas, tree-lined roads, access points to green areas, etc.) and those of problematic or disturbance within the analysed landscape (highways that interrupt the continuity of green areas, industrial areas or other sources of pollution, non-maintained green areas, etc.).

The presentation can be carried out as desired, with a short text to be read or digital support to be shown, by means of a list of keywords on cardboard or with a new drawing or by supplementing the previous mapping. The aim is to identify the healthy elements of the landscape and the elements that cause problems or threaten the quality of the specific landscape analysed.

# Session 3

Designing solution  
+ shaping/designing solution





## Aktivity 5

**TIME REQUIREMENT:**

45 minutes

**GOAL:**

- Nurturing critical sense in students and teamwork
- Identify the healthy elements of the landscape and the elements that cause problems
- Capacity to identify protection actions, enhancement of natural resources and ecological networks to limit landscape fragmentation.

**TOOLS:**

drawing, creative drawing, analogue and digital tools, photos, maps, critical understanding of the landscape (space/time), oral presentation, group work etc.

## Improving the Connections and Landscape I Live in

**Description:**

The students, concerning a specific landscape analysed on paper or regarding the excursion undertaken, discuss in groups the problems identified in the area and hypothesise one or more solutions to resolve them.

Solutions can be identified and presented in oral and written form, on paper or in digital format as well as through drawings, maps etc. or photo-collages to be shown to the class.

**Didactic info for teacher:**

An example can be found at the link

<https://in20amoilpaesaggio.it/mappa-dei-paesaggi>





## Activity 6

**TIME REQUIREMENT:**

45 minutes

**GOAL:**

At the end of the work, the students or groups of students will present the results of the group work to the class and the teacher, reflecting on:

- how to implement the strategy(s) and objectives identified, trying to prioritise (who, how, when)
- the potential beneficial impacts (or potential threats) of an idea
- how to initiate their solutions/actions

**TOOLS:**

Role-playing, group work, flipped classroom, reflective skills, exposition and presentation, digital platforms, etc.

## Present the Results

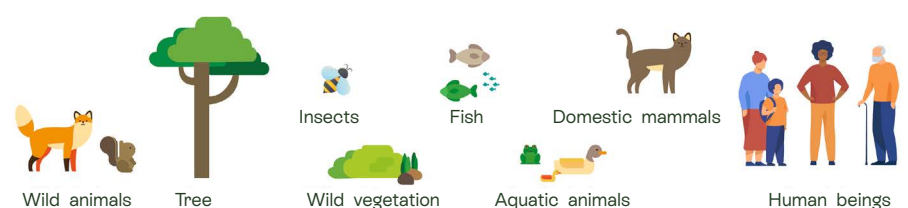
**Description:**

Following the exit or identification of an area that the students are familiar with by the teacher

- **Form Design Groups:** students will be divided into groups, each with a special target. Each group will get a figure to use. You can choose and print your figure from the attached examples (Fig.3).
- **Find Connections in Photos:** In your groups, students look at the photos (regarding the on-site inspections or ones they brought from home. They have to find something in the photos that connect to their topic (humans, animals, vegetation etc.)
- **Show the Connection with String:** students make small holes in the photo and thread a string through them to show the connection they found (i.e. Fig.4). They move figures along the string to show how the connection goes from one part of the photo to another. This helps to see why keeping things connected is important for all living things.
- **Share and Discuss:** Attach the finished pictures on the classroom walls. Each group will talk about how the connections shown by other groups relate to their topic or problem.

Fig. 3

Examples of images/stickers to be used in photo processing. Credits: reprocessed from the Freepik portal



**In addition (optional)**

Students with the support of the teacher publish their work on digital platforms dedicated to the collection of initiatives for land care and landscape knowledge (e.g. eTwining, in2Oamoiipaesaggio, etc.) trying to get in touch with national/international schools.

Initiating a network of good practices or reflections on landscape transformations -here specifically addressed to the issues of connectivity/ accessibility in and between landscape elements- supports the birth/ growth of students' geographical identity, bringing them closer to places, broadening their views, empowering individual actions and contributing to the development of a critical awareness of their place in the world. New information and communication technologies provide tools for thinking about landscapes far and near, for understanding the globality of the landscape and relationships at different scales. Students will have the opportunity to present their local landscapes on special web pages and at the same time learn about other landscapes and contexts, seen and presented with different eyes, from other perspectives, etc. Initiating a discussion forum in a digital environment could provide the opportunity for an exchange of landscape knowledge among participants, initiate school mobility in various forms and learn digital and language skills useful for further study and individual growth.

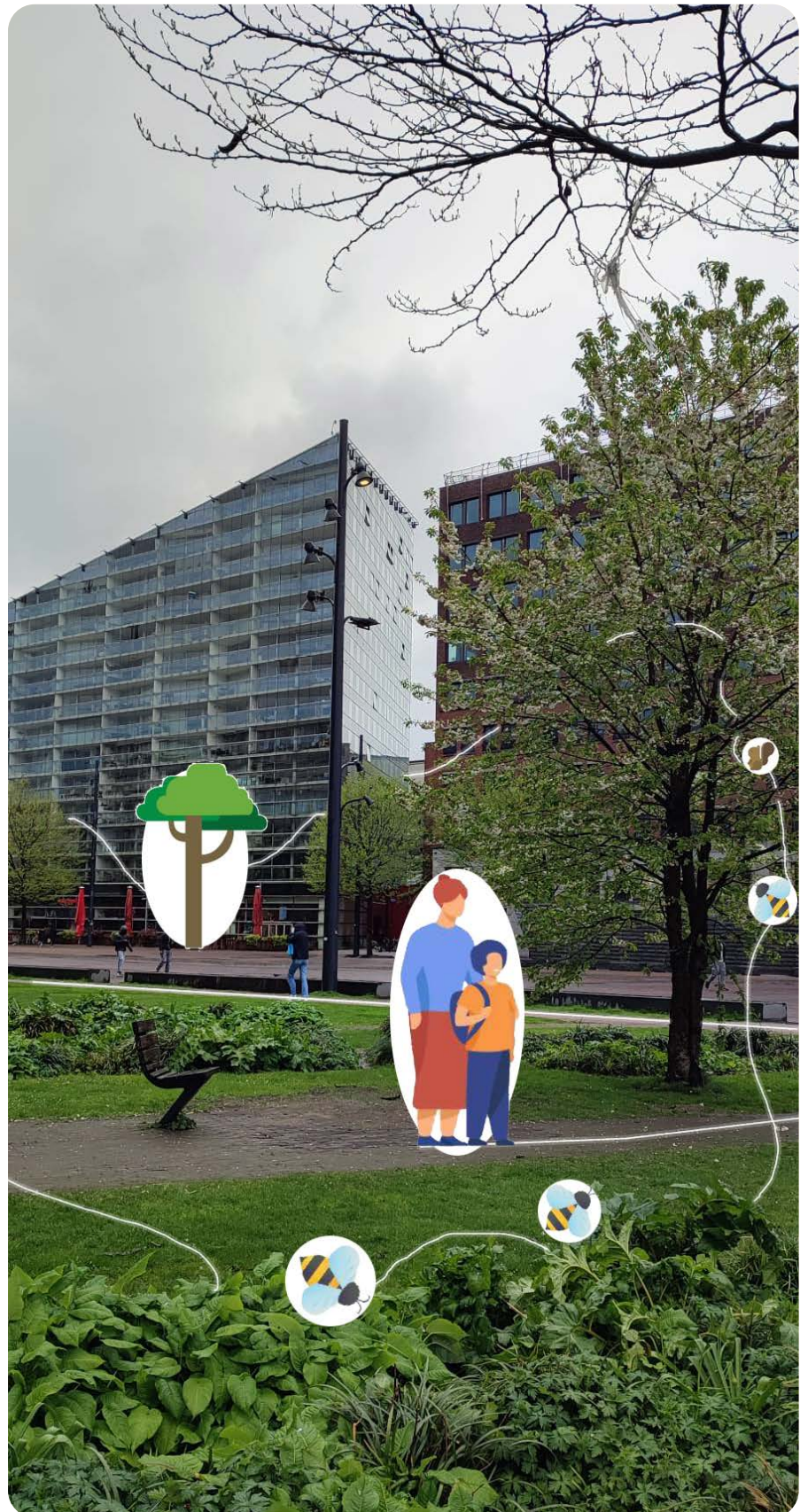


Fig.4  
 Example of a processed image for the  
 identification of ecological and human  
 connections. Credits: Unicam Team  
 (EDUSCAPE) based on personal image

### Brief recap for the teaching

Presentation of lesson topics with materials of the teacher's choice:

maps and photographs of local landscapes of yesterday/present, contemporary and/or historical cartography or satellite images printed in 'XL' (eg. A0) format, pptx presentations, audio-video media, web-online navigation, navigation on geographic portals (i.e. Google, etc.)

### Bibliography

Castiglioni, B., 2010, Educare al Paesaggio. Traduzione da "Education and Landscape for Children", Consiglio d'Europa.

Busquets Fàbregas, J., and Rubert i Tayà, J. 2011, La sensibilizzazione al paesaggio: una sfida per il XXI secolo. Barcelona: Generalitat de Catalunya, Departament de Territori i Sostenibilitat, Barcellona.

Cisani, M., Castiglioni, B. 2019, „Idee di paesaggio nei contesti educativi: attori, progetti e obiettivi”. In Ri-Vista. Research for Landscape Architecture, 17(1), 110-127.

Déjeant-Pons, M. 2021, LANDSCAPE EDUCATION ACTIVITIES FOR PRIMARY SCHOOLS, Pedagogical booklet, Council of Europe Landscape Convention.

Trusiani, E., Biscotto, E., D'Astoli, S.B. 2013, LANDSCAPE | between conservation and transformation, Gangemi Editore.

Art at school, landscape design activities with mixed techniques.

Some examples at the following links:

- <https://arteascuola.com/it/2018/11/paesaggio-a-tecnica-mista/>
- <https://arteascuola.com/it/tag/paesaggio/page/4/>
- [https://www.maestramarta.it/arte-e-immagine/classe-terza/paesaggi-allargati/#google\\_vignette](https://www.maestramarta.it/arte-e-immagine/classe-terza/paesaggi-allargati/#google_vignette)
- <https://www.educazioneartistica.com/la-linea-creativa-paesaggi-di-linee/>

### Sitography

Istituto Alcide Cervi — Biblioteca Archivio Emilio Sereni, Per l'educazione al Paesaggio a Scuola: [https://www.istitutocervi.it/wp-content/uploads/2020/12/Brocure-didattica-paesaggio\\_WEB.pdf](https://www.istitutocervi.it/wp-content/uploads/2020/12/Brocure-didattica-paesaggio_WEB.pdf)

FAI (Fondo per l'Ambiente Italiano), Ambiente? Tutto ciò che ci circonda.

Cosa sapere e come agire per diventare i cittadini di domani: <https://fondoambiente.it/il-fai/scuola/area-docenti/calendario-webinar/>

Foundation for Environmental Education, Eco-Schools:

<https://www.eco-schools.it/>

Regione Piemonte, Orizzonti UNESCO tra Agliano e Castelnuovo: i paesaggi della via del mare: <https://paesaggiopiemonte.regione.piemonte.it/cms/articoli/dal-territorio/109-educazione-al-paesaggio-una-sperimentazione-nella-scuola-primaria.html>

Wageningen Centre for Development Innovation, (2009), The landscape puzzle: An introduction to the landscape approach: <https://www.youtube.com/watch?v=fB5BiKCerFO>

Altri link a materiali e fonti utili:

- [https://it.freepik.com/vettori-gratuito/concetto-di-ecosistema-circolare\\_2739751.htm#fromView=search & page=1 & position=21 & uid=cdc710b0-efa0-4172-800f-2d3122582f44](https://it.freepik.com/vettori-gratuito/concetto-di-ecosistema-circolare_2739751.htm#fromView=search&page=1&position=21&uid=cdc710b0-efa0-4172-800f-2d3122582f44)
- [https://www.italianostraeducazione.org/wp-content/uploads/2019/01/003\\_Castiglioni\\_Educare-al-Paesaggio.pdf](https://www.italianostraeducazione.org/wp-content/uploads/2019/01/003_Castiglioni_Educare-al-Paesaggio.pdf)
- <https://in20amoilpaesaggio.it/mappa-dei-paesaggi>
- <https://www.plant-for-the-planet.org/>
- <https://www.isprambiente.gov.it/it/progetti/cartella-progetti-in-corso/suolo-e-territorio-1/soil4life>
- <https://ecologicalconnectivity.com/node/79>

## Picture caption

### Fig. 1

Understanding the concept of biodiversity. Example of 'collage' drawing enriched by each student. Credits: 'Drawn together' project available at: <https://www.thegamecrafter.com/games/drawn-together>

### Fig. 2

Basic legend, which can be implemented as desired, for the graphical identification of anthropic/natural connecting elements in the landscape, whether linear or areal. Source: Unicam Team (EDUSCAPE)

### Fig. 3

Examples of images/stickers to be used in photo processing. Credits: reprocessed from the Freepik portal

### Fig. 4

Example of a processed image for the identification of ecological and human connections. Credits: Unicam Team (EDUSCAPE) based on personal image

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