European Commission

NATURE-BASED SOLUTIONS LEARNING SCENARIO

The Travelling Fox

Research and Innovation

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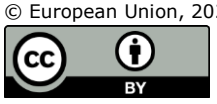

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EUROPEAN COMMISSION

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The Travelling Fox

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ABSTRACT

In this learning scenario, students are familiarised with the concept of social and environmental justice through the story, photos, and videos of Foxy Travel – a fox who likes travelling across Europe. Via web 2.0 apps (for example: Padlet, MindMup, WordItOut), students analyse Foxy's "environmental" photos in order to build a socio-environmental fair neighbourhood in which they would like to live using recycled materials. But before the building commences, they have to discuss and collaborate with their classmates in order to understand the principles and importance of nature-based solutions (NBS).

Keywords

Social justice, NBS, environment justice, neighbourhood, web 2.0 apps, PBL

1. Introduction

> *"Nature-based solutions (NBS) are solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes, and seascapes, through locally adapted, resource-efficient and systemic interventions. Nature-based solutions must therefore benefit biodiversity and support the delivery of a range of ecosystem services."* https://ec.europa.eu/info/research-and-innovation/research-area/environment/nature-based-solutions_en

To use this Learning Scenario more effectively, teachers are encouraged to:

- Check out the list of recent EU publications on Nature-Based solutions
- Read about Nature-based solutions: Transforming cities, enhancing well-being (also available as a PDF)
- Contact local NBS practitioners or scientists working in their area (they can be found through Oppla).
- Use the "Ask Oppla" service to request help in case of any technical/scientific question on NBS.

2. Overview

Overview	
Subject	Discovery of the World, Maths, Art, Language
NBS topic	Social justice and social cohesion
Recommended age of students	6–8 years old
Preparation time	30 minutes
Teaching time	1 lesson of 45 minutes 5 lessons of 30 minutes
Online teaching material	ArcGIS StoryMaps: https://storymaps.arcgis.com/stories/9bc9f09793e24da6b6d29c5bfced3ef1 also included in Annexes 1 to 5
Tools and platforms	• Padlet: https://padlet.com/ • Mindmup: https://www.mindmup.com/ • YouTube: https://www.youtube.com/

Overview	
	• WordItOut: https://worditout.com/
Offline teaching material	Paper, crayons, pencils, recycled material. The teacher may also bring a teddy bear of Foxy to the class, to bring Foxy to live.
NBS resources used	Naturvation: https://naturvation.eu/home Urban Nature Atlas: https://naturvation.eu/atlas Greenhouse Antwerp: https://www.sempergreen.com/en/references/sempergreen-green-facade-for-greenhouse-antwerp Greenhouse Antwerp: https://www.youtube.com/watch?v=8ygF_gdkr5g&feature=emb_logo Urban Nature Atlas: Teutoberg Forest Nature Park: https://naturvation.eu/nbs/bielefeld/teutoburg-forest-nature-park Urban Nature Atlas: Development of Public Orchard and Nectar Garden https://naturvation.eu/nbs/ljubljana/development-public-orchard-and-nectar-garden Urban Nature Atlas: Artemis Lagoon: https://naturvation.eu/nbs/athens/artemis-lagoon Suggested readings on how NBS can provide environmental benefits and combat inequalities stemming from environmental burdens: - https://naturvation.eu/result/briefing-social-and-cultural-values-and-impacts-nature-based-solutions-and-natural-areas - http://www.instituteofhealthequity.org/resources-reports/natural-solutions-to-tackling-health-inequalities

3. Integration into the curriculum

This scenario is consistent with the 1st and 2nd grade objectives, as students will learn to express themselves, describe and discuss the need to preserve nature.

4. Aim of the lesson

This scenario aims to help students to get familiarised with the concept and the objectives of social justice, sustainable development, the importance of green infrastructure for the benefit of the society, as well as the significance of NBS. Other core principles related to NBS that will be fostered in the lesson are participatory planning and locally engrained problem-solving – which the students will practice in the mock-up exercise. Moreover, they are challenged to think critically by finding out and understanding the impact of human activity on their local environment. Furthermore, students will locate different places on map and use the vocabulary of spatial awareness.

5. Outcome of the lesson

Using recycled materials, students will create a mock-up model of a socio-environmental fair neighbourhood. The mock-up model is not an NBS due to the recycled materials used. However, the lessons learned on the importance of green infrastructure should inspire the students to design a neighbourhood full of NBS that benefits all members of the community.

6. Trends

Project-based learning, collaborative learning, STEM learning, eco-system pedagogy, visual search and learning.

7. 21st century skills

Creativity and innovation, critical thinking and problem solving, communication and collaboration, citizenship skills.

Students must help Foxy inform people, mainly students, about environmental issues and social justice. To succeed at this, they will have to follow the steps, discuss, collaborate and find solutions, in order to create their socio-environmental fair neighbourhood.

8. Activities

Name of activity	Procedure	Time
Foxy in Brussels	Follow the activities on the online app "storymaps" Foxy Travel Story Map or check Annex 1	15'
Foxy in Germany	Follow the activities on the online app "storymaps" Foxy Travel Story Map or check Annex 2	15'
Foxy in Slovenia	Follow the activities on the online app "storymaps" Foxy Travel Story Map or check Annex 3	15'
Foxy in Greece	Follow the activities on the online app "storymaps" Foxy Travel Story Map or check Annex 4	15'
Map	Follow the activities on the online app "storymaps" Foxy Travel Story Map or check Annex 5 – Activity 1	10'
1st step	Forest research provides a definition of social and environmental justice: "*Environmental justice deals explicitly with the distribution of environmental benefits and the burdens people experience, at home, at work, or where they learn, play and spend leisure time. Environmental benefits include attractive and extensive greenspace, clean air and water, and investment in pollution abatement and landscape improvements. Environmental burdens include risks and hazards from industrial, transport-generated and municipal pollution*." In this step, students give examples of justice (fair distribution of environmental benefits) and injustice (inequitable distribution of environmental benefits and burdens). The teacher writes the examples on the Padlet (or other sharing tool) or blackboard or whiteboard. After the discussion, and with the help of Foxy's photos, students state their opinion about what is social-environmental justice/injustice.	15'
2nd and 3rd step	A piece of paper is separated into two parts: on the first part, students draw the neighbourhood they would like to live in, and on the second part – another version of the neighbourhood that they wouldn't like to live in. In the next round, they are informed that a much older family member and animals will also have to live in this neighbourhood and given a chance to change their drawing.	20'
4th step	The teacher can take a photo of or scan students' drawings and make a collage with them, using Padlet (or other sharing tool).[1] They could also write or discuss the pros and cons of each neighbourhood. For younger students, the children may provide feedback orally, leaving the written answers for older children.	25'
5th step	Students create a word cloud in WordItOut web 2.0 app (or other word cloud creator apps, such as Tricider) with words concerning the basic features of a socially just neighbourhood.	20'
6th step	This is part of the assessment activity: using recycled materials, students will create socio-environmentally fair neighbourhoods that will be beneficial for every member of the community, regardless of disability, age, poverty, or disadvantage.	45'

[1] It is possible to use artful thinking routines in order to help students express their thoughts and ideas. One possibility is to get the students to share their drawings. Additionally, they may record their voices to create interactive posters. Furthermore, wordart and other tools, can be used to create a word cloud for the collage of their drawings (posters).

Name of activity	Procedure	Time
	A possible additional activity following step 6 is to create a board game and/or ideal city using their creation in step 6 (creation of their neighbourhood using recycled materials).	
	Note: Steps 1 to 6 are also included in Annex 5 – Activity 2.	

9. Assessment

The assessment of the students will be done based on the creation of the socio-environmental fair neighbourhood.

Annex 1: The traveling fox in Belgium

The traveling fox.

Once upon a time, there was a fox... her name was Foxy Travel. Foxy adored traveling and taking photos of ...monuments? No, no... Let's see the photos and the videos she took from her last journey....

As she was wondering around Belgium, she met in Brussels a very strange group of people and....polar bears....

> *Well, I didn't know that polar bears live in Brussels...*

Later... as she was wondering in Antwerp she took this lovely video: https://youtu.be/8ygF_gdkr5g

> *What a strange garden....*

So, what did Foxy see in Belgium?

Example: Brussels is the centre of political decision-making for Europe. The European parliament takes decisions that affect all countries of the Union. Therefore, it is common for eco-justice protests to take place in the capital of Belgium. The greenhouse effect causes the temperature to rise. This changes the life in North-pole and species that are used to cold temperatures, such as polar bears, are threatened with extinction. A way to tackle the greenhouse effect is through creating more green spaces. The video illustrates an effort to develop a green wall that can reduce CO2, the ingredient that causes the temperature to rise.

Annex 2: The traveling fox in Germany

The traveling fox.

Once upon a time, there was a fox... her name was Foxy Travel. Foxy adored traveling and taking photos of ...monuments? No, no... Let's see the photos and the videos she took from her last journey....

Foxy once visited German... her feelings were very conflicted...

She first visited the Harz Mountains in Germany.

> *Oooh... what is this... I feel so...so...*

....but on the same trip she also visited the Teutoburg Forest / Egge Hills Nature Park.

> *This is one of my best photos in this trip...*

So, what did Foxy see in Germany?

Example: Forests are the lungs of earth. They produce the oxygen we breath and clean the air from pollutant ingredient. However, poor decision-making in some regions has led to severe deforestation leading to extinction of various species and creating an unhealthy environment for citizens.

Annex 3: The traveling fox in Slovenia

Author Ralia Thoma, CC-BY

The traveling fox.

Once upon a time, there was a fox... her name was Foxy Travel. Foxy adored traveling and taking photos of ...monuments? No, no... Let's see the photos and the videos she took from her last journey....

During Foxy's travel she once stopped in Slovenia... There she took photos of rivers near neighbourhoods... Foxy loves city rivers. But not all of them!

> *But not all of them! I am not very happy with the canal in Lahovo!*

But oh! when she saw the river Ljubljana…

> *Now this one is pretty* 😊

So, what did Foxy see in Slovenia?

Example: Water pollution can affect the biodiversity of the wetland. It also increases the hazard of infection for humans. Apart from the threat to our health, polluted ecosystems can create restrictions in economic activity, leisure, and work out. Making sure that the wetland of our area is clean can lead to better life for all.

Annex 4: The traveling fox in Greece

The traveling fox.

Once upon a time, there was a fox... her name was Foxy Travel. Foxy adored traveling and taking photos of ...monuments? Let's see the photos and the videos she took from her last journey....

During this trip, Foxy went to Greece. She wanted to see the famous Greek sea...

> *Oh no no no, what a pity, when I see sea pollution.*

But then she went to see Artemis Lagoon on the East Coast of Attika

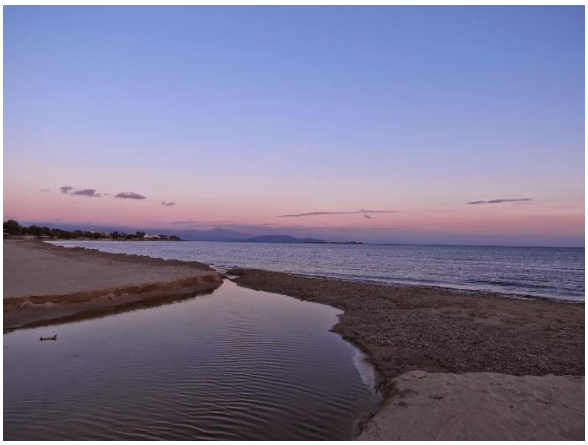

Figure 1: Reproduced with permission from author. Source: Zogaris, S. (2013) Samothraki Natural History. Athens Nature Journal posted 28.08.2013. Accessed 16.09.2013 at http://zogaris.blogspot.gr/2013/08/samothraki-island-natural-history.html

> *This sunset... this coast... they are so beautiful!*

So, what did Foxy see in Greece?

Example: Throwing rubbish in the sea can have a catastrophic effect to the biodiversity of the local ecosystem. Scientists find more and more concentration of plastic in the food chain. This can have devastating effects for the economy of an island but most importantly it threatens the lives of both humans and animals. This can be considered an environmental burden to humans and injustice to humans and animals who are exposed to its adverse effects over time.

Annex 5: The travelling fox activities

Activity 1: Go to Google maps or Bing maps or any other online map tool and identify all the places that Foxy travelled to

Activity 2: Foxy decided to spend some time in Greece sunbathing and swimming, before returning to her home in Belgium. She wanted to take a closer look at her photos. She must inform people and mainly students about environment issues and injustices. Well, I am pretty sure that she is going to need your help...

Let's help Foxy....

- 1st step: What is the difference between Justice and Injustice?
- 2nd step: Draw the place where would like to live.
- 3rd step: Make at least one change to your first drawing knowing that your grandparents or parents would also have to live in this ideal place.
- 4th step: Make at least one change to your first drawing knowing that animals would also have to live in this ideal place.
- 5th step: Draw the place where you wouldn't like to live.
- 6th step: Let's make a collage with your drawings...
- 7th step: Explain "I would like to live in a place where..."
- 8th step: Let's create our beloved neighbourhood, using recycled materials...

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The NBS project is initiated and funded by the European Commission Directorate-General for Research and Innovation and coordinated by PPMI, in collaboration with European Schoolnet (EUN). PPMI (www.ppmi.lt/en) is a leading European research and policy analysis centre, aiming to help public sector and civil society leaders from around the world, presenting evidence in a way that is simple, clear and ready to use. European Schoolnet (www.eun.org) is the network of 34 European Ministries of Education, based in Brussels. EUN aims to bring innovation in teaching and learning to its key stakeholders: Ministries of Education, schools, teachers, researchers, and industry partners. Find out more about nature-based solutions: https://ec.europa.eu/research/environment/index.cfm?pg=nbs and all the NBS Learning Scenarios created in this project as well as the overall reports can be found at http://www.scientix.eu/pilots/nbs-project

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Studies and reports

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