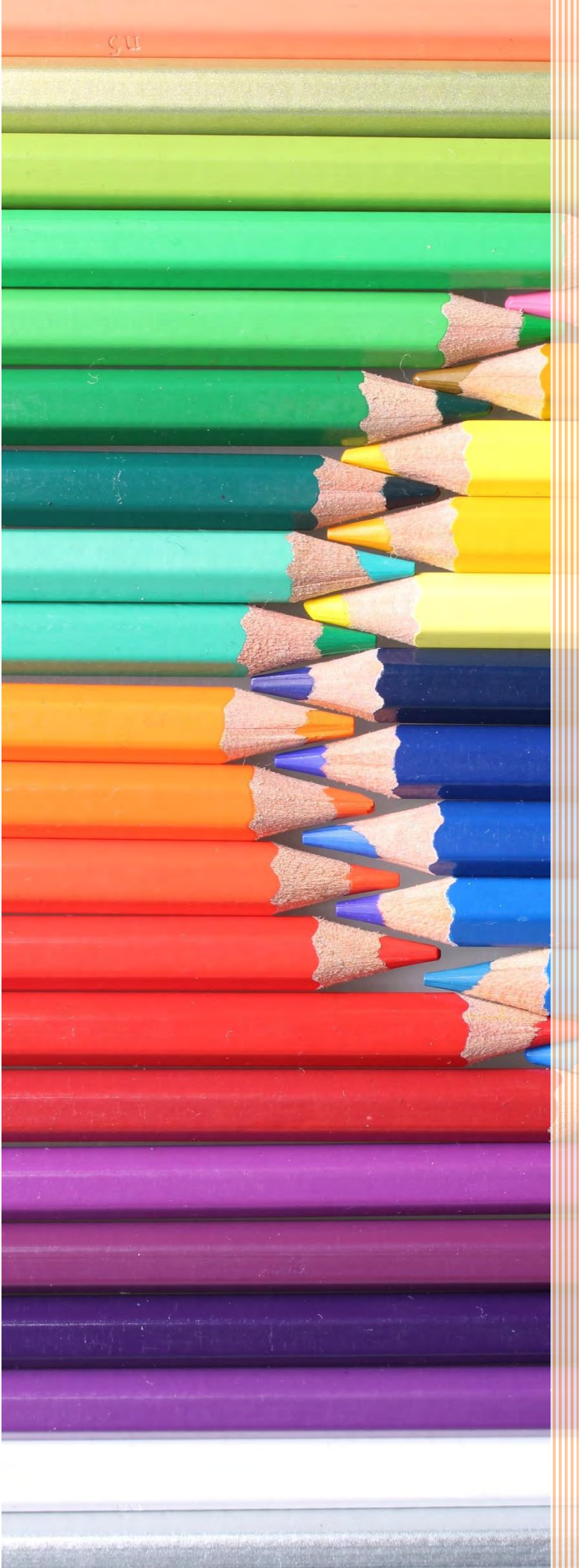

beagle
Bioethical Education and Attitude Guidance for Living Environment

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EDUCATIONAL MATERIALS

Erasmus+

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AGENCY FOR MOBILITY AND EU PROGRAMMES

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Bioethical Education and Attitude Guidance for Living Environment

1. HOW TO USE EDUCATIONAL MATERIALS

In your hands you're holding the result of the second intellectual output of the project BEAGLE – Bioethical Education and Attitude Guidance for Living Environment. Project gathers partners from Croatia, Slovenia, Italy, and Greece, under the umbrella of Erasmus+ platform, with a common goal of promoting bioethical education, developing critical thinking, and overall changing of attitude towards better understanding of our environment.

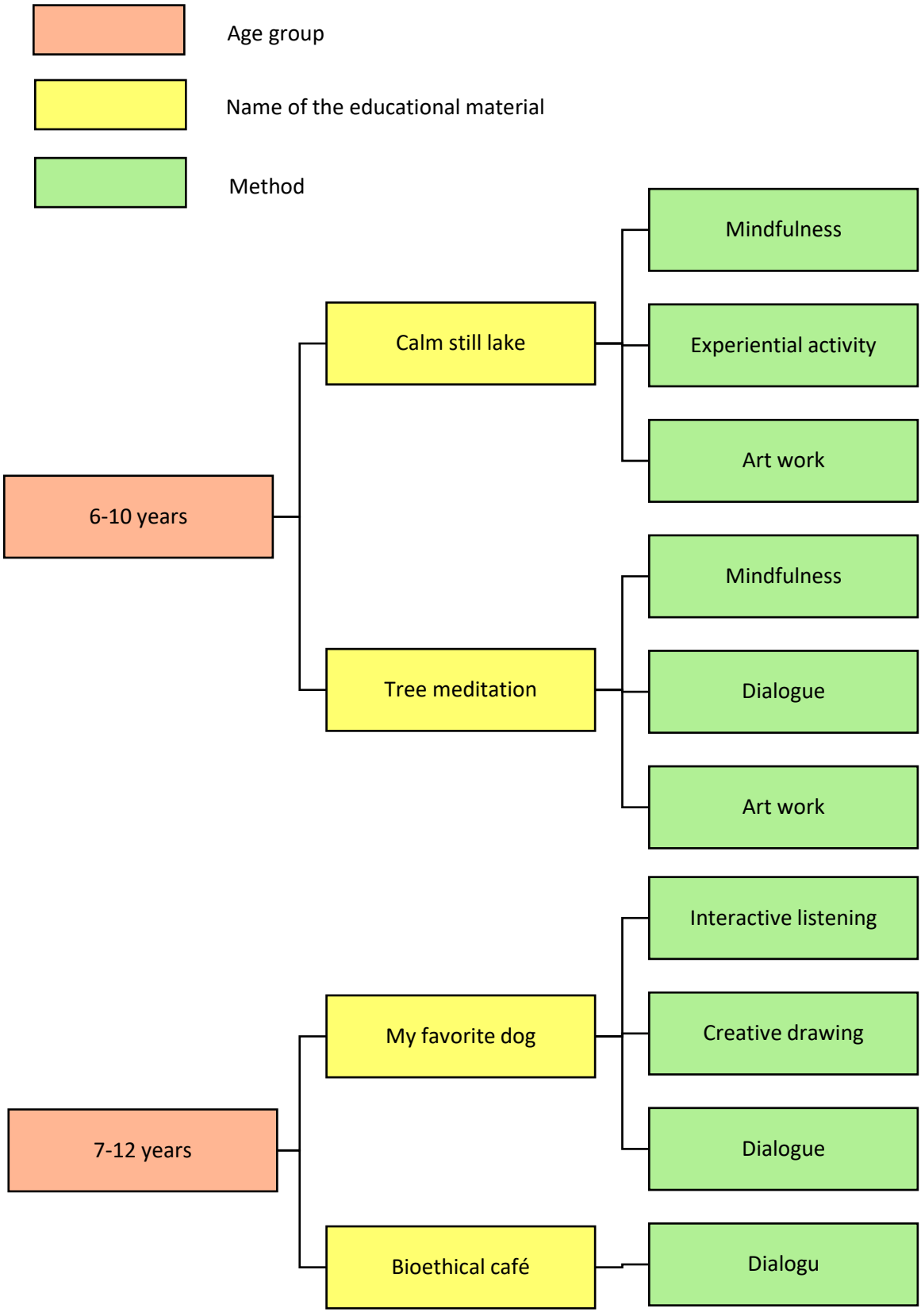
In this document, you will find the division of educational materials according to age groups of children and young people, and according to the educational methods used in materials. All materials are described in detail "step by step" and created in a way to promote interactive discussion and critical thinking among young people on bioethical topics.

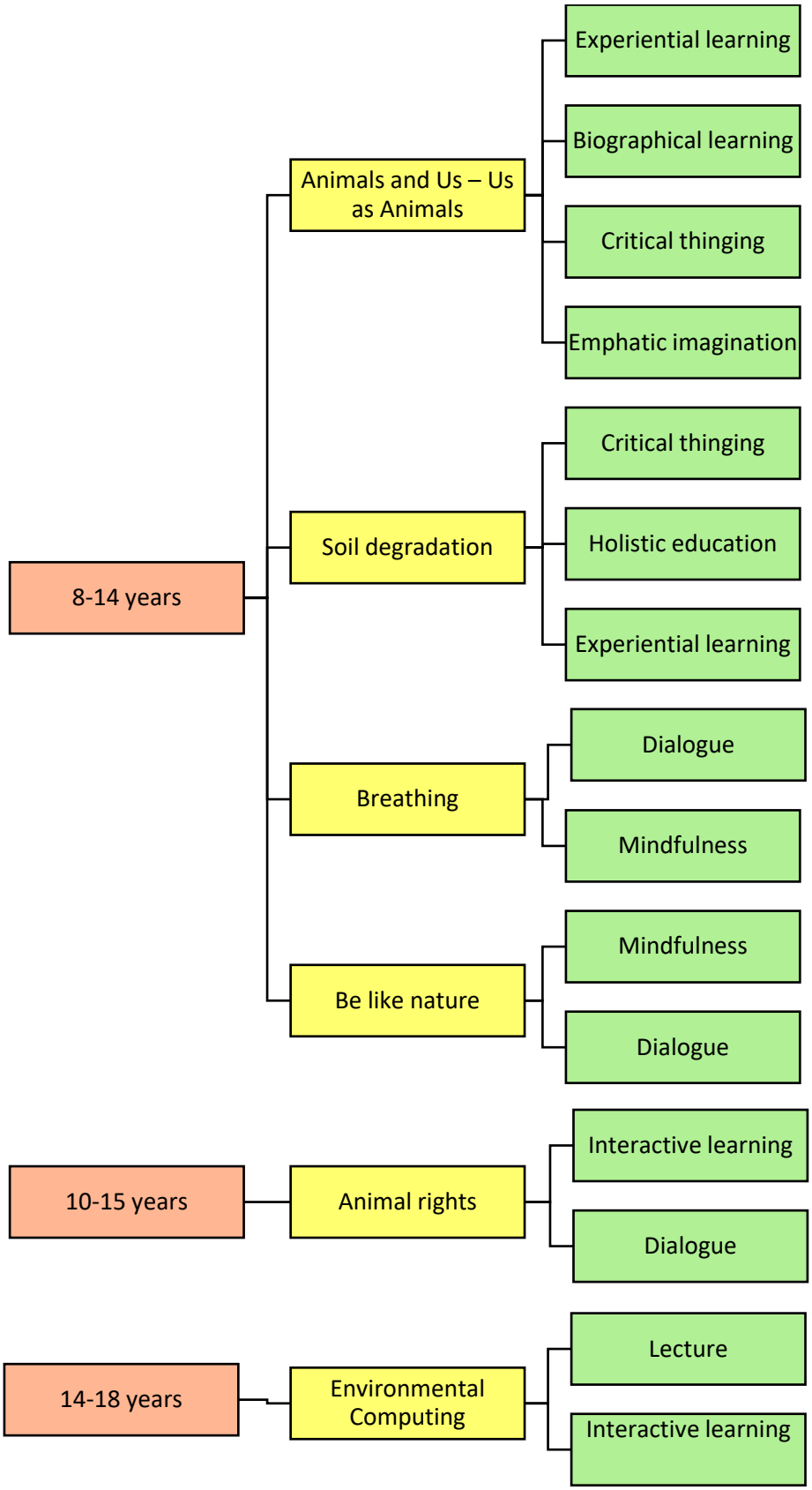
The materials have an indicated age group of children, duration and number of participants, and are designed as independent educational aids with specific methodological guidelines. **This does not mean that you have to strictly stick to what is written, but you can adapt the materials, activities and offered questions to the needs and possibilities of the group.**

The materials can be used in different educational circumstances and contexts as well as in different national curricula because they deal with issues that have no boundaries, but are universal.

We hope that these educational materials will encourage you to be creative and give you a dimension in working and teaching bioethical topics in a simple, creative and fun way.

2. DIVISION OF EDUCATIONAL MATERIALS




8-14 years
Animals and Us – Us as Animals
Experiential learning
Biographical learning
Critical thinging
Emphatic imagination
Soil degradation
Critical thinging
Holistic education
Experiential learning
Breathing
Dialogue
Mindfulness
Be like nature
Mindfulness
Dialogue
10-15 years
Animal rights
Interactive learning
Dialogue
14-18 years
Environmental Computing
Lecture
Interactive learning

Soil degradation

Note: This workshop can be done with wide range of age groups. Make sure that bioethical topic, number of participants, time and level of discussion are adopted to the group age.

Age range: 8-14 years

Time: 60-90 minutes

Group: whole class (25 students)

Materials and tools: Black or white board, several sheets of (eco)paper, pencils, markers, different materials, wrapping papers from candies and chocolates (newspaper, coloured paper, metal parts, wooden parts, other waste products etc.)

Educational methods: experiential critical thinking, embodied critical thinking, holistic education, experiential learning.

Key learning points:

This activity encourages students to:

- think about their relationship with soil,
- understand the importance of soil for human life and life on Earth in general,
- understand the processes that affect the soil and impact of people on the soil,
- re-establish their connection with the soil/nature,
- think creatively,
- focus on their senses, sensations, and emotions.

Step by step - how to do it?

The workshop has three activities. Each activity can be done individually, depending on time available and content you want to present to students or children. Some contents included in the activities are optional. You can use it in a way that suits you best for your aims or needs. You can adapt the approach and steps described, for example, if you work with younger children they can use drawing instead of writing. Some parts of the content can be reduced or rephrased so that you focus on just a few key points that the students will be able to comprehend and remember.

Workshop

<u>Activity 1</u>

Part 1
Start the workshop by giving each student a bigger piece (eco)paper (A3) and on the floor put some crayons. Then invite each student to draw his or her own perfect environment/land/place. (Where would they live if there were no limits? Where they can feel peaceful and happy?) They should be as detailed as possible. Let them draw for about 15 minutes. When they finish with drawing, they should put it away, where they can find it later and use it again in the following activities.

What is soil and why is it important?

Start with short introduction about the soil.

Irina Kim, biointensive practitioner and teacher from Uzbekistan says that *"the soil is a living organism. Like all other living organisms, she breathes, feeds, grows, develops, and moves. Nature gave her external and internal spiritual beauty. This must be understood by first seeing, then feeling, understanding, and above all, falling in love with her."*
Soil is a natural body, a living organism on the surface of the earth's crust or like World wild life organisation (WWF) puts it the soil is a thin and "*fragile skin that protects all life on Earth. It is comprised of countless species that create a dynamic and complex ecosystem and is among the most precious resources to humans."* As a living organism, soil has an important role throughout the entire ecosystem, as it allows life together with air and water. Without this live organism, life on Earth is not possible and that is why human life depends on the soil. (Vovk Korže, 2015).

Part 2
Give students some time to think and write down on paper (A4) some first thoughts about soil, e.g. by instructing them to finish the following two sentences "The soil is…" and "The soil is important for…" After they finish with writing, invite them to share their thoughts with the group. Write on the board all their thoughts.
Some points for discussion could be:

The soil is:
- essential resource for life on Earth,
- living space,
- natural resource,
- material,
- space,

- residence,
- restroom (WC).

The soil is important for:
- food production,
- growing plants,
- agriculture and forestry,
- natural and cultural archives,
- settlements and traffic surfaces,
- water supply and water purification,
- regulation of heat, water and energy,
- storage, cleaning, balancing.

What is soil degradation?

Shorty emphasize the main things that you have discussed given the points above. Then introduce the students some further facts about the soil. You can use the content below.

As we can see, soil has many functions and roles. One of the main ones is fertility of the soil. Fertility is soil's most essential characteristic. The soil can maintain itself, but if demands for its use are to big it can become irreversibly degraded. The fact that "half of the topsoil on the planet has been lost in the last 150 years (WWF)", is worrying. And the fact that it takes a very long time for the creation of new soil, only a few centimetres of new soil is created in thousands of years, we can understand that the soil is very valuable and given that we do not have any other substance available for the same use, it is an irreplaceable natural resource. (Vrščaj, 2017)

What makes soil fertile? "The soil is a living organism that must be fed and nurtured to keep it feeding us."[1] That means that it has enough of good nutrients, minerals, water and air. But this is not the case in many areas all around the world, because the soil in that areas is not nurtured properly and thus the natural wealth is destroyed.

<u>Activity 2</u>

Part 1
Divide your students in 3 groups of 4-6 people. Each group gets one bigger sheet of paper (A3). Give students some time to think, debate and decide as a group, which are causes for soil degradation and then they write them down. When they finish invite one student from each group to present their causes. The causes common to all groups

[1] http://www.growbiointensive.org/grow_main.html

should then be written down by you on a write them on bigger piece of paper (A3). Discuss the ones that are left and if all students agree on them after this discussion, put them besides the already written ones. Try not to duplicate the causes and you can join causes together to get 6-8 main causes at most.

Part 2

If you have time and possibility, go out on nearby meadow, find a lawn or a park. You will now invite students to engage all their senses, emotions, sensibilities, etc. in their bodies. Take a list of causes for soil degradation with you.

Invite students to walk around, give them an option to take their shoes off and walk barefoot on different surfaces, e.g. the grass, dirt, asphalt, river or stream nearby and they should observe how they feel in the body and what emotions they can feel. Invite them to feel the ground, the dirt with their hands, smell the soil, smell the flowers, which smell is the most dominant, how many sounds they can recognize etc.

When you decide to finish with this activity, ask students to lay or sit down and invite them to close their eyes. If they wish and if there is possibility invite them to bury their hands into the dirt or soil or just leave hands to lay softly on the ground or grass. Tell the students that you will now read all the causes for soil degradation you wrote down together earlier. You will read them slowly and one at the time, that students have time to execute the task. The students have the task that they listen to the cause, think about it and try to feel with their bodies the impacts that affect the soil. For example, you can ask them, how would they feel in their body if something (e.g. pollution with pesticides) would happened to them. Where in or on the body they can feel this? Than invite them to touch the ground, dirt, grass and think about what kind of impact would this cause had on the ground here, where they are laying down now. What would happen with grass, trees, stream etc? Read each cause in that way.

After you finish with reading all the causes invite students to quietly, in their mind, thank the soil, grass, air for giving us life. (If you are staying in the classroom you can tell them to close their eyes and imagine walking, touching, feeling the soil beneath their feet, etc. You can do the entire activity in this indirect way. Invite students to close their eyes and imagine the beautiful green meadow or forest. Then they should imagine putting their shoes off and walk bare foot. What do they feel, smell? Etc.)

Part 3

Each student takes his or her drawing from Activity 1, Part 1. Put some crayons on the floor along with toilet paper, plastic bags, coloured pieces of papers, newspapers, magazines, wool, wood, metal parts, glue, markers, wrapping papers form candies, other pieces of waste etc.

Put the list of causes for soil degradation on the board or in the place that everyone can see them and invite students to look at them. Invite them to go slowly through each cause and try to think how each cause impacts the soil (or that they remember their thoughts and feelings from Part 2). Their task is that for each cause (e.g. building a motorway) they think of one impact on the soil (e.g. deforestation, coverage of soil with concrete, asphalt, waste, etc.). Invite them to find one material, which best represents

that kind of impact. When they find the material, they put it on their drawing. This drawing represents their perfect land with the fertile soil.
When they finish invite students to reform the same groups as in Part 1 and join their finished pieces of papers together. Ask students to debate for a minute or two. You can use the following questions: What can you see? What can't you see (anymore)? How do you feel when you see, that there is no fertile land to use anymore? Was it difficult to put that "waste" on the paper knowing that it represented your perfect place and fertile soil? Which impact was the worst? Which one did you find not harmful at all? etc…

Part 4
At this point you can finish the activity with short reflection by giving students some final points and main thoughts on what was activity about. It was about the soil degradation. What does it mean, what are the causes etc. You can use content below.

Causes for soil degradation and its impacts:
- natural soil erosion (rain, wind, climate changes, etc.)
- soil erosion – human impact (agriculture, increasing population, urbanisation and industrialisation),
- improper transition from natural vegetation to agriculture (deforestation – conversion of forests and grasslands to farm fields and pastures),
- inappropriate land management (excessive use of land for construction (overpopulation); construction, dredging on the most fertile soil; over intensive farming and inappropriate techniques),
- soil (metal) contamination and persistent organic pollutants,
- reduction of biodiversity,
- overgrazing (goats),
- mechanisation (compaction of soil with large tractors etc.),
- avalanches (poor irrigation and drainage schemes),
- reduction of organic matter in soil (pesticides),
- causing declines in fish and other species,
- trashes covering the land (empty bottles, cans, papers, plastic bags near motorways, …),
- etc.

Crucial impacts are compaction of soil, loss of soil structure, nutrient degradation, and soil salinity. That kind of soil makes land less productive for agriculture, creates new deserts, pollutes waterways and can alter how water flows through the landscape, potentially making flooding more common, and a loss of biodiversity, with huge economic costs.[2] "Soils in the process of degradation are losing the ability to perform for the vital functions of life." (WWF) Since the recovery of degraded soil requires a

[2] https://www.worldwildlife.org/threats/soil-erosion-and-degradation

very long time, soil degradation in practice is one of the most irreversible processes. In that sense soil degradation represents a devaluation of environment and society in general. Franklin D. Roosevelt has written in 1937 the *Letter to all State Governors on a Uniform Soil Conservation Law*, that "The nation that destroys its soil, destroys itself."

Activity 3

Part 1

In this last activity students are still sitting in groups formed in Activity 2. Invite them to look at their environment they created as a group (pieces of paper filled with different "pieces of trash" and put together). This "land", is their starting point for reflection. They can take a paper from Activity 1, where they were completing the two sentences "what the soil is…" and "importance of the soil…" . On the other, blank side of the paper each of them should write an answers to the following questions:

- What is the value of the soil for me personally (why I need it, how much I would pay for it e.g. in the sense – what I would give in return, what I would give up for the soil)?

- What was my impact on soil degradation so far in my life (what in my current lifestyle is causing soil degradation)?

- What can I do as an individual to prevent soil degradation (what can I do to nurture and care for the soil better)? To help them with this they can use the pieces of paper in front of them and think what they could take away from them, what is really needed for society and life in terms of these impacts and where could we find better solutions.

Part 2

When they finish, they share their answers within the group. Now, give them their final task. They have to find solutions based on their answers to re-establish the fertile soil – if this is even possible? They should focus on the following questions:

- What can we do as a society to prevent soil degradation? What are the solutions that are sustainable?

- How to live in harmony with the soil/nature (how can I care for the nature)?

When they finish invite them to share solutions or final thoughts with all the others and write them on the blank side of the paper, where you haver previously written down the causes for soil degradation in Activity 2, Part 1.

Shortly recap on the activity and introduce to the students the theme of soil ethics. You can use the content below.

Soil Ethics

The soil is a living part of the environment and plays a crucial role in the planning for the use of the environment. Over the last decades, the importance of soil as a living component of the landscape has been increasing because of the increased burdens and the loss of fertility. Because soil is a natural resource for humans, especially for food production, there are frequent conflicts between the needs of society and the characteristics of the soil. That is why the soil ethics has a role of regulating the ecological, economic, political and social dimension in the environment.

The soil ethics is based on three foundations:

a. The soil is a life and therefore has an ethical value in itself.

b. The soil is the foundation of every life.

c. The soil is a complex natural body, subject to degradation. (Vovk Korže 2015).

What to do?

- "The health of soil should be one of the primary concern to farmers and the global community whose livelihoods depend on well managed agriculture that starts with the dirt beneath our feet. While there are many challenges to maintaining healthy fertile soil, there are also solutions and a dedicated group of people, who work to innovate and maintain the fragile skin from which biodiversity springs." (WWF)

Some of the key measures for preserving fertility of the soil are:
• maintaining an adequate content, stock of plant nutrients in the soil;
• preventing soil compaction;
• reduction of soil organic matter losses;
• care for good soil structure;
• conservation of the biological diversity of the soil.
"The ethical duty of our generation is to leave the fertile and unpolluted soil for the next generations. Soil fertility is vital for the functioning of the environment and the existence of man." (Vrščaj 2017)

Good practices

The European Commission (2019) has drawn up guidelines and good practices for limiting, mitigating and replacing soil sealing due to the large losses and build-up on fertile soil in Europe. In the Seventh Environmental Action Program, which entered into force on 17 January 2014, the EU recognizes that soil degradation is a serious challenge. The program obliges the

EU and the Member States to increase efforts to reduce soil erosion and increase soil organic matter content, to remediation of contaminated soil and to sustainable use and better soil protection.

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