

## SUBJECT AREAS:

Natural Sciences

## ACTIVITY DESCRIPTION:

Collaboration and teamwork, communication, critical thinking and problem solving, creativity and imagination.

## OBJECTIVES:

Become motivated to regulate their own way of behaving, both at school and in their living environment, assuming correct and responsible behavior towards themselves and the environment, with a particular emphasis on the city or country in which they live.

Use creativity and imagination to find solutions for sustainable.

## MATERIALS:

Classroom equipped with interactive whiteboard, basic stationery (recovery sheets, pens, pencils, highlighters, etc.); digital devices able to take pictures, better if smartphone or tablet (possibly one for each student).

## GRADE/LEVEL:

Secondary school (15-18)

## DURATION:

Preparation time: 30 min.  
Activity time: 60 min.

## PLACE:

Classroom, Group number: groups with maximum 4 students each group

## AUTOR:

SSOU "Dimitrija Chupovski"-Veles,  
Republic of North Macedonia

# Ecology means sustainability

## INTRODUCTION:

***Ecological sustainability includes everything that relates to the Earth's ecosystems.***

The typical path of the development of human civilization has degraded ecosystems, caused climate change, and led to biodiversity loss. The design, construction and use of urban built environments has greatly contributed to these issues. This fact, combined with the knowledge that more than half of all humans now live in urban areas, means that the re-conceptualization and adaptation of urban areas must be part of a suite of responses to climate change and biodiversity loss. To face these challenges in a context of rapid global urbanization, cities must develop both adaptation and mitigation strategies that create societal health while concurrently regenerating the functions of degraded ecosystems, reducing or eliminating greenhouse gas emissions, and restoring biodiversity. Current and future environmental pressures include increased extreme precipitation events, droughts, flooding, urban heat stress, poor air quality, and for coastal settlements in particular, sea level rise. Climate adaptation and mitigation strategies must create societal and ecological health, regenerating the functions from degraded ecosystems and preserving biodiversity.

## BACKGROUND:

### Procedure:

- The teacher will use this short time (5-10 minutes) at the end of a previous lesson to announce to the pupils, without giving too many explanations and thus feeding their curiosity, that for the next lesson they will have to take some pictures (with smartphone, tablet or digital camera) of the place where they usually spend their free time with friends (public park, equipped playground, outdoor sports field, etc.). The electronic devices with the photos recorded inside should be brought to school in the next lesson.
- The photos - the teacher will explain – that the details of the area concerned, such as the pavement, any fences, waste bins, sports facilities, children's games, etc.
- In the next step, entirely dedicated to the realization of the activity, the teacher will first acquire as many photos as possible taken by the students, through bluetooth connection, sending by e-mail, sharing with the class computer or other means. The photographic materials collected in this way will be projected on the interactive whiteboard so that everyone can see them and comment with the class on the feeling of functionality and cleanliness, or dirtiness and neglect, transmitted by the photos.

- The teacher will lead the debate by stimulating students to reflect on the importance of good maintenance and cleanliness of the spaces in which they spend their free time, as far as both game aims are achieved and dangers deriving from unhealthy places are avoided: a degraded place is not only dangerous, but also attracts further degradation and discourages the presence of other children/youngsters and other families. This part of the photo projection and general discussion will take no more than 20 minutes.
- Students are then invited to form small groups, which the teacher will take care to shape according to the need to avoid that students attending the same place of youth aggregation are part of the same group.
- The task that the teacher will assign at this point to the various groups consists in:
  - a) analyzing in detail the photos of the places portrayed by each member;
  - b) noting on any sheet of paper the weaknesses that prevent a pleasant and safe use;
  - c) briefly describing the cleaning/requalification/maintenance interventions that in the opinion of the groups would be necessary to make those spaces more pleasant, clean, safe, usable.
- Once the work of the groups has been completed, the sheets of paper with the reports and suggestions to improve the usability of the places of aggregation analyzed will be photocopied (or photographed by the students with their devices), so that one copy will remain in the possession of the respective groups and the other will be given to the teacher.
- In the next step, each group will present to the class its critical reflections on the place under consideration and explain the improvement proposals made. The teacher/ teacher will lead the debate and allow the other groups to make constructive observations, making the proposals even more credible and pleasant. The best ideas, evaluated in this way at the teacher/teacher's unquestionable judgement, will be conveyed to the outside through the communication channels of the school and the 21C-SDG project, with the aim of bringing them to the tables of the local administrations able to intervene in the most appropriate way.

## FUN FACTS:

- *Around 27,000 trees are cut down each day;*
- *Humans use only 1% of all available water;*
- *78% of marine mammals are at risk of choking on plastic;*
- *Fungi play a highly vital role in the environment;*
- *Ants weigh more than humans;*
- *A glass bottle can take up to 1 million years to decompose;*
- *Recycling one glass bottle saves enough energy to power a normal light bulb for about four hours;*
- *Paper from trees can be recycled 6 times;*
- *In the second half of the 20th century world population doubled, food production tripled, energy use quadrupled:*

## ASSESSMENT:

Each of the students should take the following tests, record the results obtained and write what impact their lifestyle will have in the future for the preservation of the environment!

(<https://www.footprintcalculator.org/>);

- In the next task children will test their knowledge about lifestyle and sustainability - write the results!

(<https://www.sustainablestuff.co.uk/quiz-how-green-your-life.html>);

## EVALUATION:

Ask your students how they can influence the process of sustainability and environmental protection for future generations?