

# Journal for a Project on Sustainable Development

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Location: Lyseonpuisto Upper Secondary School, Rovaniemi, Finland  
Group: National, compulsory biology course **B12 Ecology and the Environment**  
Number of students: 26

## A. Project Objectives

1. Versatile and local investigation of sustainable development
2. Development of teamwork skills of the students

## B. Project Planning

The course teacher Raimo Koponen met Anna-Maija Partanen from the University of Lapland, on November 25, 2019. They discussed plenty of ideas, which worked as the basis for further development of the project. The aim was to select topics on sustainable development, which emphasized

- practicality,
- locality,
- interdisciplinary collaboration and multidisciplinary.

The teacher then continued elaborating on the topics alone, and finally, in the finished theme tray, students had the choice of the topics listed below. The topics were given to students to select about two weeks before the start of the project. In the course of their publication, the following points were highlighted:

*The purpose of the project is to study **sustainable development in the most practical way**. The examination is done in a multidisciplinary way, i.e. by **combining the knowledge and skills of different school subjects**. This is done, not only by searching for and using skills acquired in different subjects (e.g. languages, arts and mathematics), but also by discussing them with teachers in other subjects (= teacher consultation). The students' plans should mention which subjects could have the possibility of supporting the themes chosen for their projects.*

*Project work includes also practicing of **teamwork skills**. Each member of the group will be asked to assess the success of this with a form provided by the teacher at the end of the project.*

*The form of the result of the project will vary depending on the topic and should be discussed with the teacher before starting the work. Students are encouraged to be creative, especially when it comes to open ended productions.*

## **C. Topics of the Students' Projects**

The following is a list of the themes of the projects which were completed. Working was done in pairs, with exceptions in brackets. Following the subject, the teacher's comments are written.

### **1. Sustainability survey**

Google-Forms survey was sent to all the students in Lyseonpuisto Upper Secondary School. The topic was the consumption behavior of the students' families. When generalizing the results, it must be taken into account that the survey is not a random sample of the target population. Integration with mathematics.

### **2. Programming a simulation on climate change**

Here the student co-operated with an expert from Lapland University of Applied Sciences. The data for the simulation was obtained from the Finnish Meteorological Institute. The work took place on the premises of the university. The product of the project was a simulation, in which the student presented the evolution of temperatures in Sodankylä, a city in Lapland, over the last hundred years. Implementing this project required the student to have basic knowledge in coding. Integration in mathematics.

### **3. Developing a new sustainable business idea**

The purpose of this work was to become familiar with the basics of business. The final product was a business idea about an application for selling new and used clothes, a connected poster and outline of the app's visual appearance. Integration in social science and visual arts.

### **4. Sustainable development in the exhibitions of the science center Arktikum (4 students)**

Visit to science center Arktikum. The aim was to get the staff in the center to help with the project, but this was not realized. The presentation was based on rich pictorial material.

### **5. Sustainable development in science center Pilke, exhibitions and office of Metsähallitus**

Visit to science center Pilke. The aim was to get the staff in the center to help with the project, but this was not realized. The presentation was based on rich pictorial material.

### **6. Sustainable development at Lyseonpuisto Upper Secondary School**

Explore those maintenance services and school activities of Lyseonpuisto Upper Secondary School that support sustainable development. Collaborate with the school's Green Flag Project Leader and Food Service Executive. The operation of the property could not be explained due to communication and scheduling problems.

### **7. Counterintelligence sustainable development (3 students)**

Making posters adhering to the principles of counterintelligence. The result was three counter ad posters, one computer-made, the other two hand-made. Integration with visual arts and mother tongue.

### **8. Conducting a lesson on sustainable development in primary school (two pairs)**

The students contacted the schools and agreed on the subject and timetable. Oral presentation of the lesson.

### **9. Interview with a travel expert in the city of Rovaniemi travel expert (one student)**

The purpose was to interview the CEO of Visit Rovaniemi, but this was not possible due to scheduling problems. Answers to the questions were received from a lower level official via email. Instead, the student interviewed a local tourism teacher on the subject. Oral presentation.

### **10. Solar panels in Lyseonpuisto Upper Secondary School (1 student)**

Calculations of how much electricity could be generated by installing as many solar panels to the roof of the school as possible. Integration in mathematics and physics.

### **11. Debate on sustainable development (4 students)**

Debate duration was approximately 15 min. The subject was: *Is fast fashion sustainable?* Students agreed on who of them were in favor and who were against. After that, they prepared for the debate. The rules and format of the debate were agreed between the participants. After the debate, it would have been good to discuss the course of the debate. This could not be done, but feedback was received through the Google-Forms form. This made it clear which team was the best in the minds of the audience. Integration in social studies and mother tongue.

### **12. Documentation of the project for video (2 students)**

The pair sought to capture video material and / or photographs of the activities of the other students. They also received material from co-workers and edited a summary. There is no comment in the video. The texts are in English.

Some topics that were offered to the students but did not materialize are listed below.

**Local food in Rovaniemi**

**Open source research of environmental problems and sustainable development**

**Constructing diagrams on environmental problems and / or sustainable development (e.g. Gapminder.)**

## Sustainable development at tourist center Arctic Circle

### Experimental research on environmental problems or sustainable development

#### D. The project schedule

##### 01/17/2020 Beginning of the project

The class studied with the teacher the following topics:

- What is sustainable development
- Ecosocial education
- Agenda 2030 - Global sustainable development goals
- Ecological debt and Overspending day
- Ecological lifestyle indicators
- Circular economy
- Bioeconomy

Finally, the students were given 10 min to plan their activities and write down the plan in the following table.

*Make a plan for working on the Sustainable development project by supplementing the table below, where applicable.*

*Team X:*

*Topic:*

<i>Date</i>	<i>When</i>	<i>Place</i>	<i>I Do</i>	<i>Other Information</i>

##### 21st, 22nd and 24th of January 2020 working with the projects

During their lessons (75 min.), students worked in their chosen projects either at school or outside of school. Anna-Maija Partanen visited the class on the 21st and 24th of January.

##### 27.1. Presentations of the projects

In the morning, 2 hours were spent presenting students' projects. Anna-Maija Partanen was also there. Each team / pair / student was allowed 5-10 minutes to present their work. The students could choose the way of presenting themselves.

## E. Evaluation

Project work accounted for 10% of the students' final mark of the BI2 course.

## F. Self evaluation

Students use the following form to evaluate their own performance.

*Write down in this table what you did and what you learned during the sustainable development project. You can add rows to the table if needed.*

*Students:*

*Other subjects we utilized:*

*Teachers of other subjects who helped:*

<i>Date</i>	<i>What Did I Do?</i>	<i>What did I learn?</i>

*How do you think you succeeded in the project? Write a few sentences and give a school grade (4-10) for your success.*

## G. Self-evaluation of teamwork skills

This did not happen because some of the groups were too small (1-2 students), thus revealing the identity of the assessor.

## E. Teacher Conclusion

The project was a success. The best thing was that **working motivation of the students was so good**. This was probably due to the fact that the students were able to choose the topic they were most interested in. Motivation and enthusiasm are also indicated by the fact that some students would have wanted to participate in more than one teams, although in the end it was quite difficult due to scheduling problems.

Of course, there is always something to develop. The students did their best, but the teacher should have had more time to help and guide some of the groups. Self-evaluation was not entirely successful, but this was not the students' cause either. The teacher should take better care of this.

The project framework as such can be repeated (preferably a little more carefully) in the same course. It is possible to modify and develop topics, but the basic idea works well.

