

Final Project Report

1. Contestant profile

▪ Contestant name:	Mgr Danuta Skrzypczak
▪ Contestant occupation:	Biology Teacher
▪ University / Organisation	Zespół Szkół Ekologicznych im. Unii Europejskiej w Zielonej Górze
▪ Number of people in your team:	22

2. Project overview

Title:	Discover A Fascinating World By Discovering Nature
Contest: (Research/Community)	Community
Quarry name:	KSM Nowogród Bobrzański

Abstract

The main aim of the project, realised within KSM Nowogród Bobrzański by the combined efforts of teachers and students of Zespołu Szkół Ekologicznych im. Unii Europejskiej w Zielonej Górze (ZSE), was the creation of the guidebook for the mine.

The guidebook contains information detailing nature attractions and places of biological, geographical and/or geological interest within the mine, as well as a set of challenges for children and teenagers at different levels of education. The teaching materials were developed specifically so that every student, including people with disabilities such as visual impairment or hearing impairment, can take part in the activities.

The nine-month effort encompassed a preparation phase (measuring and analysing the mine's geological and geographical features, cataloguing the plant and animal species seen within the mine with the aim of creating an interactive map, analysis of available literature, as well as a realization phase (trips to the mine and trying the outdoor game with students not involved in the project, distribution of the guidebook, publishing the project's progress on the projects internet web page.

The project was prepared and brought to life mostly by students under the mentorship of teachers from the geography, biology and languages departments. Members of the project team strived to tailor the projects educational materials to the needs of the syllabus while simultaneously making the games entertaining, allowing learning through fun

Final report

Introduction

The terrain of the mine Nowogród Bobrzański is an ideal location for children and teenagers to learn about the wonders of nature. Due to the accessibility of the mine as well as the mine's plenty paths, the mine is accessible for people with disabilities that impede their mobility but are still able to independently manoeuvre. Thanks to the great diversity in habitats and large number of both animal and plant species, the mine is an ideal location to observe the different seasonal changes that occur in different environments. Organising even several trips to the mine during the school year would be of great benefit, as the students will still have something new to learn. Every season, month, or even week allows for observing new interesting phenomena and learning something new. Students can take part in independent study (under teacher supervision) or take part in solving tasks previously prepared by their supervisors.

Getting to know nature is a fascinating journey which can last a whole lifetime. It is best to capture student's interest by preparing interesting and inspiring activities. The prepared field games and proposed independent observation of living organisms in their natural habitat will undoubtedly capture the student's interest and help inspire them.

Aims

The project had the following aims:

- Preparation of a guidebook for KSM Nowogród Bobrzański containing a description of terrain games and a set of tasks with their solutions.
- Developing student's ability to learn independently.
- Analysing the geological and geographical conditions as well as biodiversity within the area of KSM Nowogród Bobrzański.
- Utilising scientific data and observations for educational purposes at different levels of ability.
- Developing the individual reasoning, abilities and interests of students.
- Nature education through entertaining games.
- Utilising GPS technology for the creation of an interactive map.

Methods

Work for the project was divided into two phases: Data collection and analysis, Implementation

Data collection and analysis phase (from March to June):

- Terrain analysis (soil and water samples, pH samples and mineral content samples, collecting data regarding geological and geographical features in KSM Nowogród Bobrzański)
- Cataloguing flora and fauna with special attention given to cryptogram and medicinal plants and insects.
- Identify and denote species of animal and plants (through the use of keys and textbooks).
- Collecting information on identified species (using available literature including scientific papers).
- Creation of an interactive map.
- Creation of exercise sheets and information sheets.
- Creation of outdoor games with tasks centred around nature.

Implementation Phase (from April to August):

- Carried out the outdoor game with tasks centred around nature, to troubleshoot any possible problems with the previously prepared tasks and exercise sheets.
- Developing and printing of the guidebook for KSM Nowogród Bobrzański.
- Addition of handmade traces of selected medicinal plants, which allows for students (including visually impaired students) to recognize the plants through touch.
- Publication of information regarding the progress of the projects progress on the project web page.

Actions

Our project team consisted of over twenty people. To enable the team to work more efficiently towards its goals, we divided ourselves into five teams: biologists, geographers, GPS technology specialists, IT specialists and translators.

The first three teams, from May to June, led field analysis within the mine. They took soil and water samples to analysis the chemical properties of the soil and water bodies. They identified species through the use of keys and textbook, as well as taking photos to document habitats and areas or plants and animals of specific interest. Some of the animals were very difficult to observe so their calls were recorded – lesser whitethroat (*Sylvia curruca*), their tracks were photographed – European roe deer (*Capreolus capreolus*), or evidence of their activity was noted – European beaver (*Castor fiber*).

Work also took place in school offices and groups frequently met up outside of school. Students prepared activities for the outdoor game, exercise and information sheets, maps of the analysed terrain and interactive maps. Supervising teachers checked the prepared material when required, suggested solutions to certain problems and helped nurture their student's independence.

On 12th June 2018 we conducted on the site of the mine the prepared outdoor games. The route of the game was specially chosen so that it would keep the interest of participants: students from our school (who didn't participate in the project) and students from VI Liceum Ogólnokształcące in Zielona Góra.

The outdoor game enabled us to see how the previously prepared materials worked in reality. Thanks to this test run, we were able to make corrections and improvements before the publication of the guidebook. The preparations for publication took place for half of July and most of August. The authors of all the photos and illustrations within the guidebook are the students or teachers of the ZSE school. The printing of the guidebook was done by the "DRUKLAND i, co" company, which was the main expense of the project.

The IT specialists group prepared the logo of the project and systematically updated the progress and work done by the project on the project web page. This information was translated into English by the Translator team.

Discussion

The preparation phase of the project enabled our students to perform independent observations and scientific analysis. It enabled them to develop their independent interests and abilities. Young naturalists had the dominant influence on the direction of the project. They independently annotated regions of the mine as well as independently identifying plant and animal species which they wanted to include in the outdoor game. They learnt how to identify specific species through the help of keys. Further information about the identified species was researched from the available literature. The project members preparing the exercise sheets took care to reach as diverse a group as possible. The tasks are customizable according to the level of difficulty, to allow students at different levels of education to take part in the outdoor game. Care was also taken to ensure the games were accessible and enjoyable for visually impaired or hearing-impaired students.

The actions of the workers of KSM Nowogród Bobrzański, as well as the work of organizations in conjunction with the workers of KSM Nowogród Bobrzański, has been a large factor in the increased biodiversity visible on the terrain of the mine. The possibility to observe and analyse the common characteristics of taxa within specific habitats increases the educational appeal of the mine. Another significant appeal of KSM Nowogród Bobrzański is the enthusiasm of both management and workers with regards to supervising and helping with the organization of trips to the mine.

The lay of the land, the uneven surface as well as the lack of infrastructure makes it not possible for people requiring a wheelchair or mobility scooter to take part in activities within the gravel mine. Health and safety rules prevent the participation of large school groups in the prepared field games.

Results

For the students ZSE:

- Participation in outdoor games, leading role in independent observations and analysis.
- Preparation of exercise sheets and illustration sheets.
- Supervising students who took part in the outdoor games during the trip to the mine on the 12th June 2018.
- Preparation of the guidebook for KSM Nowogród Bobrzański (first publication for this mine and area)
- Cooperation and assisting students from VI Liceum Ogólnokształcące (additional participants in the outdoor games during the trip)

For participants of the outdoor games:

- Education regarding the health and safety rules within the mine, as well as familiarising themselves with an area of industry they may not have seen before.
- Participation in outdoor games and obtaining knowledge regarding nature through educational games.

For KSM Nowogród Bobrzański:

- Creation of good relations with the local community (some of our project members as well as some of our participants in the trip are inhabitants of Nowogród Bobrzański) as well as schools in Zielona Góra.

For interested teachers of nature subjects and foreign languages:

- The availability of educational materials in the form of a guidebook with a short description of the educational benefits of the mine, suggested games and prepared materials (including the corresponding answers).

Final Conclusions

KSM Nowogród Bobrzański mine enables teachers of nature subjects and foreign languages together with their classes to lead interesting and educational games, at different levels of difficulty suitable for different ages of student. It is perfectly suited to teach students about the seasonal changes seen in nature. The great biodiversity and variety of species within the mine enables activities to be tailored to syllabus requirements.

The teaching materials prepared by students of ZSE under the supervision of teachers proves that getting to know nature is a fascinating journey which can last a whole lifetime. The positive feedback both from project members and participants in the outdoor games prove that participation in the games is both enjoyable as well as a very effective method of learning.

The great interest of teachers not involved in the project illustrates the great interest and demand for this type of educational materials.

Bibliography

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Wydanie zbiorowe pod redakcją **Krystyny Walińskiej**, „Waloryzacja środowiska przyrodniczego i działania edukacyjne o charakterze proekologicznym na terenie kopalni surowców mineralnych Nowogród Bobrzański”, Zielona Góra 2014.

To be kept and filled in at the end of your report

Project tags (select all appropriate):

This will be use to classify your project in the project archive (that is also available online)

Project focus:

- Beyond quarry borders
- Biodiversity management
- Cooperation programmes
- Connecting with local communities
- Education and Raising awareness
- Invasive species
- Landscape management
- Pollination
- Rehabilitation & habitat research
- Scientific research
- Soil management
- Species research
- Student class project
- Urban ecology
- Water management

Flora:

- Trees & shrubs
- Ferns
- Flowering plants
- Fungi
- Mosses and liverworts

Fauna:

- Amphibians
- Birds
- Insects
- Fish
- Mammals
- Reptiles
- Other invertebrates
- Other insects
- Other species

Habitat:

- Artificial / cultivated land
- Cave
- Coastal
- Grassland
- Human settlement
- Open areas of rocky grounds
- Recreational areas
- Sandy and rocky habitat
- Screes
- Shrub & groves
- Soil
- Wander biotopes
- Water bodies (flowing, standing)
- Wetland
- Woodland

Stakeholders:

- Authorities
- Local community
- NGOs
- Schools
- Universities

Attachment 1 - Title Page of the Guidebook

Discover A Fascinating World By Discovering Nature

Guidebook for KMS Nowogród Bobrzański

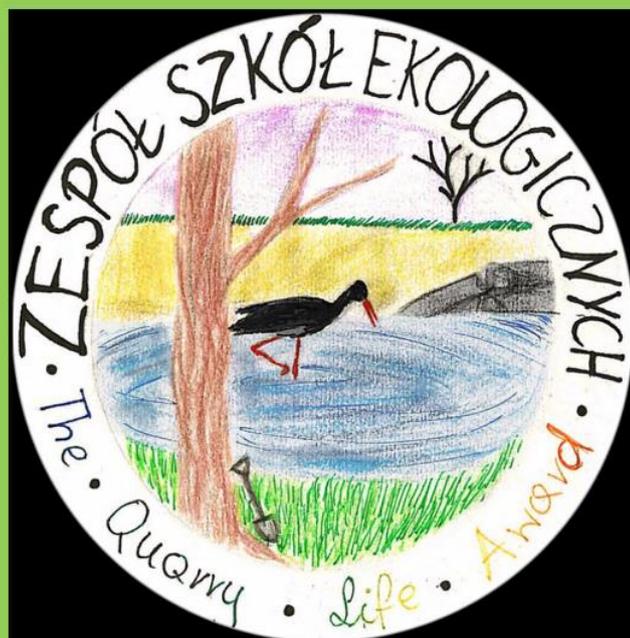


Illustration by Agnieszka Kowaliczek

Authors: Students and teachers of Zespołu Szkół Ekologicznych
im. Unii Europejskiej w Zielonej Górze.

Attachment 2 - Map of the Outdoor Games at KSM Nowogród Bobrzański played 12th June 2018



QR Code - Track To Go



Interactive map link:

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<iframe class="gpsies" src="//www.gpsies.com/mapOnly.do?fileId=kxiemhoetrokofgx" width="100%" height="400" frameborder="0" scrolling="no" marginheight="0" marginwidth="0"></iframe>
```

Attachment 3 - Exercise sheets

	<p>International ecological project "THE QUARRY LIFE AWARD" Field game at KSM Nowogród Bobrzański mine site "GETTING TO KNOW NATURE YOU WILL DISCOVER A FASCINATING WORLD"</p>	
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Site 4 A:

Who's calling?

Identifying different animals and their sounds

TASK 1

Points available: 2

Identify animals shown in the pictures:

great tit, hoopoe, frog, lesser whitethroat

Picture number:

1.
2.
3.
4.

TASK 2

Points available: 2

From the animals identified in task one name those whose sounds you hear:

1.
2.

<https://www.quarrylifeaward.com/projects/poland/poznajac-przyrode-odkryjesz-fascynujacy-swiat>

TASK 3

Points available: 2

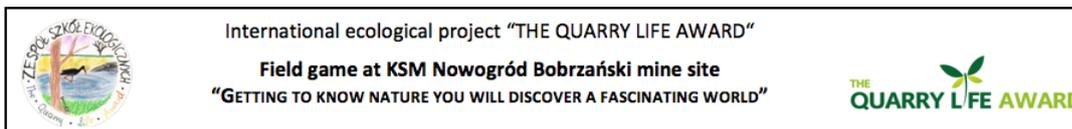
In which period of their lives and why do animals make sounds like those in task 2?

life period.....

the reason of making such sounds.....

WHO'S CALLING?





Site 6:

Senses garden
Identifying plants without looking at them

TASK 1

*Difficulty level ***: Points available: 4*

In your folder there are sheets with dotted contour lines presenting four out of six medicinal plants you have already learnt about. Your task is to identify them.

NAMES OF PLANTS (revision):

- ❖ yarrow,
- ❖ common plantain,
- ❖ klammath weed,
- ❖ coltsfoot,
- ❖ horsetail,
- ❖ biennial evening primrose.

4 points

*Difficulty level **: Points available: 2*

You will be given four out of six leaves belonging to medicinal plants you have already learnt about. Your task is to identify them.

2 points

*Difficulty level *: Points available: 1*

You may now take off your eye coverings and identify the leaves of the plants by looking at them.

1 point



Field Horsetail (*Equisetum arvense*)



Coltsfoot (*tussilago farfara*)



Common Yarrow (*achillea millefolium*)



Broadleaf Plantain (*plantago major*)

Attachment 4 - Link to guidebook

<http://lo2.ek.zgora.pl/index.php/accordion-3/442-quarry-life-award>