

Botanikiáda project – the way of motivation for both learning and teaching biology

ANDREA FRIDMANOVÁ¹ & BEÁTA JUREČKOVÁ²

¹Botanical Garden of P. J. Šafárik University in Košice; andrea.fridmanova@upjs.sk

²P. J. Šafárik University in Košice; beata.jureckova@upjs.sk

Fridmanová A. & Jurečková B. (2015): Botanikiáda project – the way of motivation for both learning and teaching biology. – Thaiszia – J. Bot. 25 (Suppl. 1): 19-22. – ISSN 1210-0420.

Abstract: BOTANIKIÁDA project is realized in the Botanical Garden of P. J. Šafárik University in Košice. It is aimed at the science popularization. Project is the way of motivation for both learning and teaching biology. Up to now, we have successfully implemented the project BOTANIKIÁDA for six years, together 16,050 pupils completed on-line tests and 1,288 pupils participated in the regional rounds.

Keywords: botany, Botanikiáda, Botanical Garden of UPJŠ, science popularization

Introduction

BOTANIKIÁDA arose at P. J. Šafárik University in Košice in 2009 as a project aimed at the science popularization and the support of interest in learning science subjects, i.e. also botany. Experience with science teaching at primary schools indicates insufficient time devoted to science subjects, missing educational cultivation areas, therefore the teaching takes usually by introduction of theoretical knowledge without practical experience and without becoming familiar with the biological material. The study of these subjects therefore becomes difficult and not very attractive. The staff of the Botanical Garden of P. J. Šafárik University tries to change this situation and to promote interest in the study of science subjects in an appropriate way for six years by means of the project BOTANIKIÁDA. The project was financially supported by APVV Agency from 2010 to 2012. During the years 2013 to 2015 the project was carried out from our own resources and with the support of project partners.

The project targets and implementation strategies

Each year of the project we addressed more than 400 schools. Approximately 100 schools with the fastest registration were actually involved in the project. Pupils of the fifth class of elementary schools and its equivalent from eight-year grammar schools, in Košice and Prešov region, were the target group of the project. Teachers of biology at the registered schools were a parallel target group. The main objective of the project was to arouse interest of talented pupils in botany by means of playful form of competition in order to inform them about the importance of plants and the environment protection. The parallel aim of the project was to motivate biology teachers to higher creativity and to introduce them new methodologies and interesting knowledge in botany and ecology.

The project activities were divided into two rounds. The first round was held at the registered schools by means of on-line test. The number of tested pupils depended on the computer capacity of particular schools. The on-line tests were evaluated and then the selected pupils and their teachers came to the second, regional round to the Botanical Garden of UPJŠ. For capacity reasons, the regional round was divided into several tours. A separate programs were prepared for pupils and for teachers.

Results

Up to now, we have successfully implemented the project BOTANIKIÁDA for six years. Individual years were thematic oriented. They were aimed at increasing of the knowledge of some area of botany, but also at raising of nature conservation awareness and at the environmental education. The overview of the themes of particular years of the BOTANIKIÁDA project, the number of pupils who completed the on-line tests and the number of participants in the regional rounds is shown in Tab. 1. Up to now, together 16,050 pupils completed on-line tests and 1,288 pupils participated in the regional rounds. The number of teachers who participated in regional rounds also reflects the number of registered schools in the BOTANIKIÁDA project in each year.

Tab. 1. Subtitles of each year of the BOTANIKIÁDA project, the number of students who completed on-line tests and the number of pupils and teachers in regional rounds.

Theme of the year	the number of pupils on-line tests	the number of pupils regional round	the number of teachers regional round
2010 Botanikiáda	2371	233	116
2011 We perceive the nature by senses	3317	203	128
2012 The colorful world of nature	3034	229	131
2013 We care about nature, nature cares about us	2479	207	106
2014 I love nature	2405	206	106
2015 What do trees hide?	2444	210	106

On-line tests included different sets of questions. They issued from the knowledge level of the pupils of fifth year. The sets of questions concerned: a) cognition of nature in general, b) trees, c) agricultural crops, d) aquatic plants and e) meadow plants. For example, the set of questions concerning agricultural crops consisted of 4 on-line questions each year. These questions differed from year to year. It is interesting to follow the percentage of correct answers in particular question sets in individual years. From the comparison in the Fig. 1. it can be stated that between the years 2011 and 2015 the pupils of fifth years presented their theoretical knowledge at about the same level. The pupils in 2014 mastered the problems of agricultural crops the weakest. Comparison of the percentage of correct responses from the question set concerning trees indicates that the results were more balanced during individual years and did not show major differences among individual years. These results should be interpreted only as informative ones since the questions were different for particular years. The unifying element of the comparison was the topic - agricultural crops or trees.

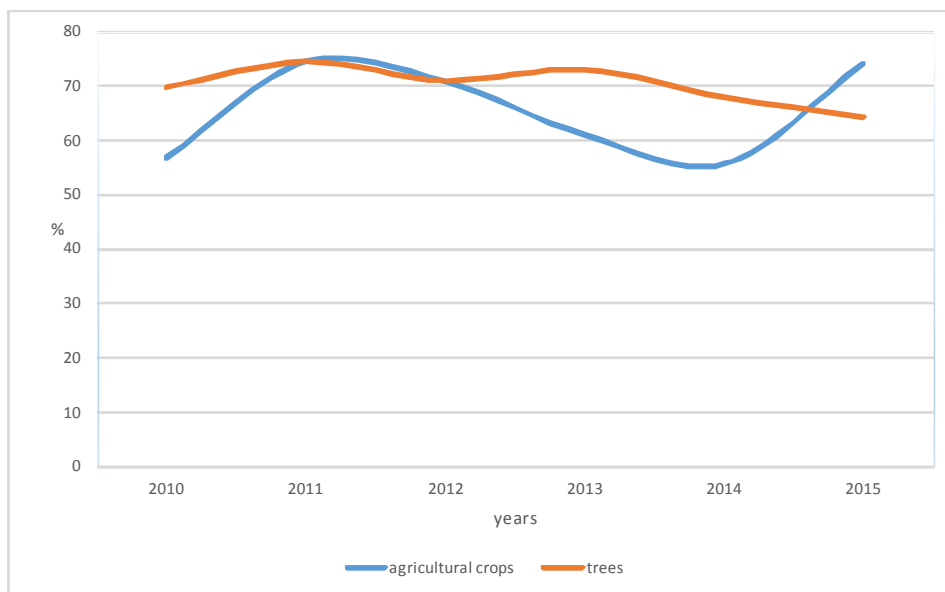


Fig. 1. A comparison of percentage of correct responses to on-line questions with the topics of agricultural crops and trees in the years 2010 – 2015.

We followed the percentage of correct responses to particular questions during the six years of the Project and we recorded the highest score for the question: “What is the typical colour of the flower of water lily – one of the most familiar aquatic plants?” Ninety-eight percent of pupils answered this question correctly. Pupils were the least successful in question: “What is the fruit of potato?” Only 27% of pupils answered correctly.

During the regional rounds the problem tasks for pupils were variable. Pupils searched the solutions in playful way with new experience, they often used practical skills. Twenty-two problem tasks were prepared annually from 2010 to 2012, 19 problem tasks from 2013 to 2015. These tasks were clearly arranged and graphically attractive. We tried to avoid the stereotype model “question – answer” and aimed at the ability of pupils to apply the acquired knowledge in practice. The answers were often based on their own experience and observations of nature. Selected students of the Faculty of Science had their role in the project, too. They had the opportunity to acquire new pedagogical experience when they acted as the leaders of the groups of pupils in the regional rounds of the project.

Each year, a separate program has been prepared for biology teachers. It had the form of seminars and presentations of four to five scientific outputs. Each year, all participating schools received a set of plants with prepared information sheets for further cultivation at school. The selection of these plants was according to the thematic orientation in individual years.

Conclusion

The project BOTANIKIÁDA obtained many fans and supporters during its six-year implementation. It is not only the quantity of reports and articles published on the websites of participating schools that indicates the positive response from the schools. It is also their annual interest in signing up for the project, which exceeds our capacity options. Some of the pupil group leaders – the students of the Faculty of Science became teachers in the meantime. Now they come as teachers with their pupils to participate in the project. Together with teachers we managed to develop some new ways of cooperation between primary schools and botanical garden, which we further plan to develop.

Received: November 24th 2015
Revised: December 14th 2015
Accepted: December 15th 2015